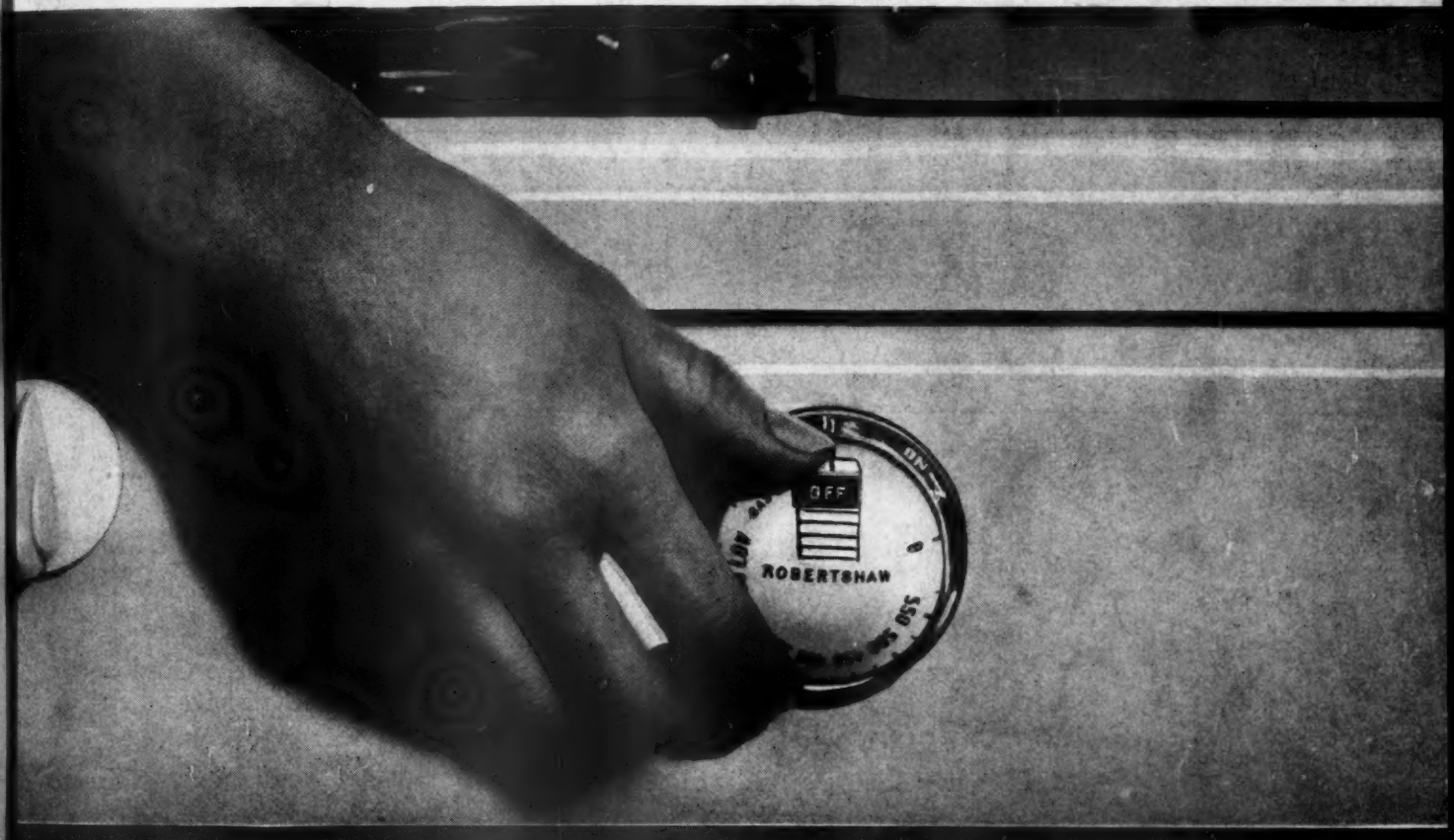
AMERICAN GAS JOURNAL

h YEAR JANUARY 1947 VOL. 166, NO. 1



ROBERTSHAW

OR ACCURATE, DEPENDABLE OVEN HEAT CONTROL

FREE! Write for copies of *More Income for Gas Range Salesmen.* A sales course in modern range selling for your salesmen...packed with useful cookery facts and selling ideas. Every range salesman should have a copy.

more income

ROBERTSHAW THERMOSTAT CO.
YOUNGWOOD, PENNSYLVANIA

Presenting the GORDON BYDAND spreader-flame—complete line of conversion burners

GAS

WE want you to examine for yourself the exclusive features of the Gordon spreader-flame burners. They speak more eloquently for themselves than we can, so we designed an exhibit of action panels:

1. See the Gordon spreader-flame principle in action.
2. Examine the telescoping venturi mixer.
3. Look at the rugged, simple, quick-acting pilot with its push-button lighter.
4. Note the iris orifice—75 orifices in one.

This way you will get fuller appreciation of the Gordon engineering excellence. We look forward to meeting old friends and making new ones at Booths 759 and 761.

ROBERTS-GORDON APPLIANCE CORP., 137 ARTHUR ST., BUFFALO 7, N. Y.

Represented by: *Look in the list for the representative nearest to you.*

ALABAMA, Birmingham 3
S. C. Bratton
405 American Life Bldg.

ILLINOIS, Chicago 5
Ruud Humphrey Co.
1223 So. Wabash Ave.

INDIANA, Indianapolis 4
Brooks Morris
5047 N. Capitol St.

MASSACHUSETTS, Boston 16
Herbert H. Skinner
250 Stuart St.

MICHIGAN, Detroit 21
E. C. Lamlein
12768 Grand River Ave.
Phone Hogarth 0154

MISSOURI, St. Louis 8
Roberts Gas
Appliances, Inc.
9 S. Vandeventer St.

NEBRASKA, Omaha 11
J. G. Cameron
579 Insurance Bldg.

NEW YORK, Metropolitan
John C. Fullerton
292 Madison Ave.
New York 16

NEW YORK, Buffalo 13
W. A. Hammond
261 Highland Ave.

NEW YORK, Rochester 7
Wm. J. Gillette
196 Chestnut St.

OHIO, Cincinnati 2
F. J. Scull
626 Broadway

OHIO, Westlake
R. E. Landers
3606 Dover Center Rd.

PENNSYLVANIA, Philadelphia 22
Porter Hurd
1500 N. 8th St.

PENNSYLVANIA, Pittsburgh 19
Ridge Appliance Co.
1505 Berger Bldg.

TEXAS, Dallas 5
E. H. Durning Company
1067 Santa Fe Bldg.
2nd Unit

UTAH, Salt Lake City
W. L. Peterson
733 East 3450 South St.

WISCONSIN, Milwaukee 2
J. H. Fagan
1022 North Water St.

AMERICAN GAS JOURNAL, January, 1947. Vol. 166, No. 1. Published monthly by American Gas Journal, Inc., at 34 North Crystal St., East Stroudsburg, Pa., Executive and Editorial offices at 53 Park Place, New York 7, N. Y. Entered as second-class matter October 7, 1928, at the post office at East Stroudsburg, Pa., under the Act of March 3, 1879. Printed in U.S.A.

Here's another of the many factors in the success of the Semet-Solvay

REVERSE FLOW WATER GAS MACHINE...

SEMET-SOLVAY 3-WAY BACKRUN VALVE

Consider These Features

1. Designed for heavy oil operation with spray system to reduce carbon and tar accumulations.
2. Large quick-opening doors for easy inspection, cleaning and repairs.
3. Uniform pressure against lute on all sides.
4. Dished welded steel discs to prevent warping, easily removed disc seats.
5. Cushioned seating prevents slamming.
6. Two large bearings cooled by radiation.
7. Tightly fitted bearings eliminate stuffing box leakage.
8. Made to fit your machine and shipped assembled, ready to install quickly.

Your inquiries will receive prompt attention

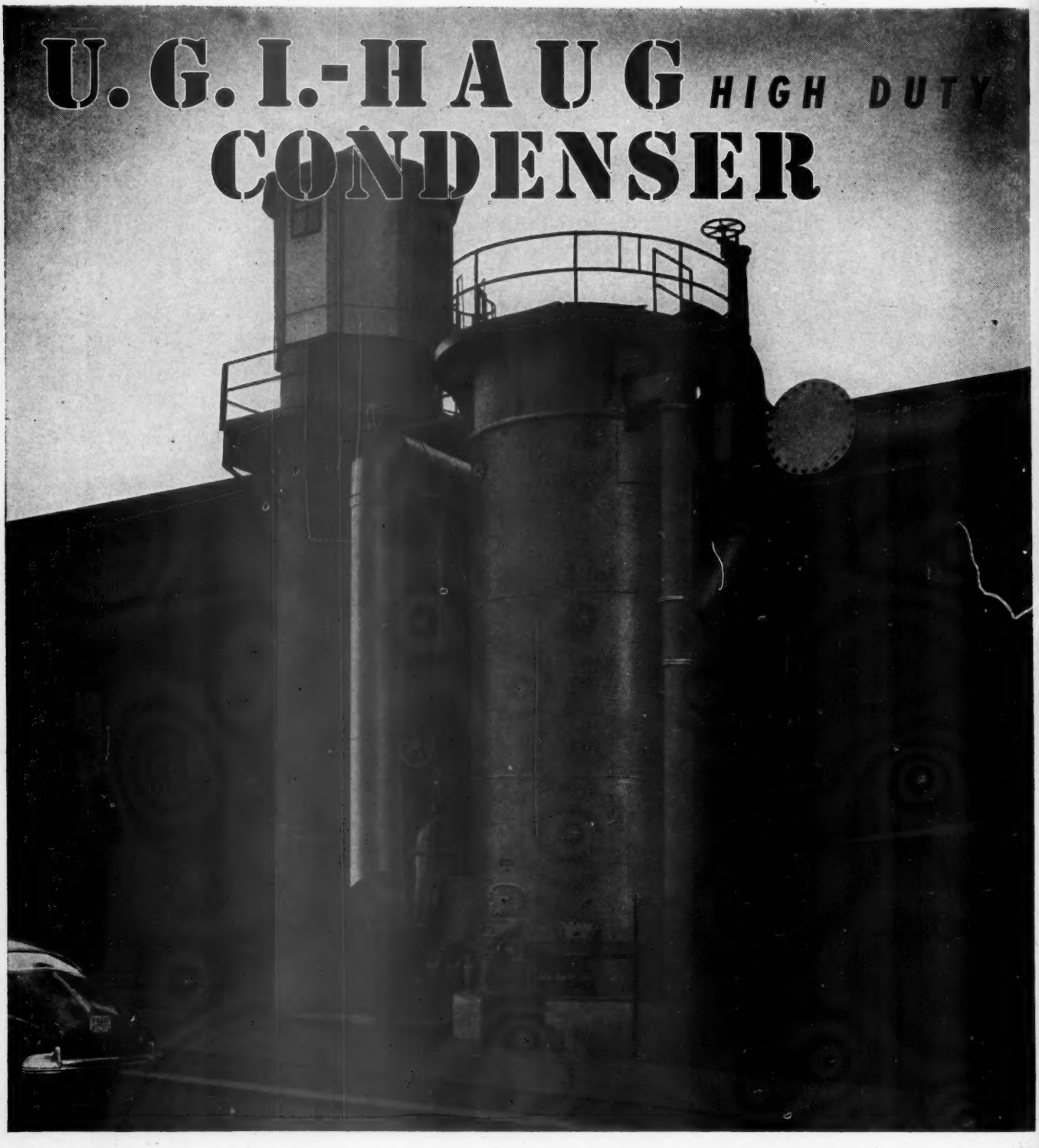
U. S. PATENTS
NO. 1761600
NO. 1854531
NO. 1900958
NO. 1900959
NO. 1900961

SEMET-SOLVAY ENGINEERING CORP. WE SELL SOLUTIONS TO PROBLEMS NEW YORK

SEMET-SOLVAY
ENGINEERING CORPORATION
40 RECTOR STREET NEW YORK 6, N. Y.

COMPANION
HOUSE BEAUTIFUL
House &
OVER 16,000,000 FAMILIES
ABOUT THE NEW SERVE
True
POST
Sellout in Yugoslavia
The AMERICAN HOME
15¢
HOUSE BEAUTIFUL
Better Homes
and
American
POST
COMPANION

A MONTH WILL READ
GAS REFRIGERATOR
Cosmopolitan
COMPANIO
HOUSE BEAUTIFUL
NOVEMBER
More Production
Means Better Living for You
By ERIC JOHNSTON
We're Getting Ready for War in Alaska
True Story
OUSEKEEPING
American



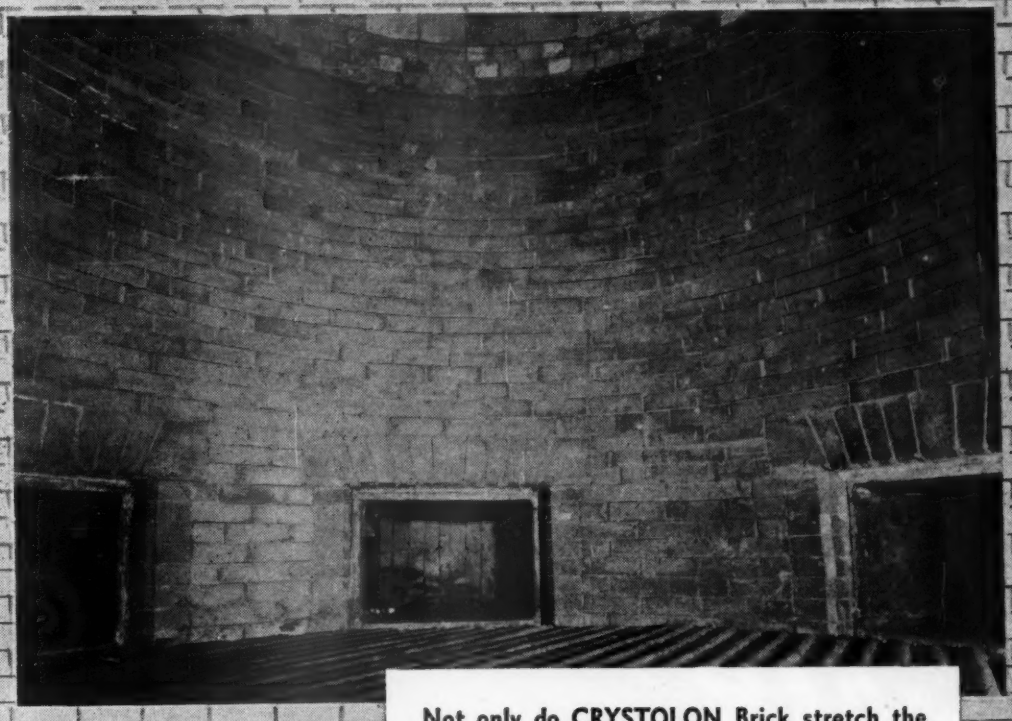
ADEQUATE condensing is an indispensable part of proper gas conditioning and provides an important step in the prevention of liquid phase gum troubles.

THE U. G. I.-HAUG HIGH DUTY CONDENSER embodies advanced principles of heat transfer as applied to the cooling of gas and offers the following advantages; High rate of heat transfer; Fresh or salt water cooling design available; Designed to meet your specific needs; Gas cooled to temperature close to temperature of water; Removal of liquid phase gum formers consistent with cooling water temperatures.

UNITED ENGINEERS & CONSTRUCTORS INC

NEW YORK PHILADELPHIA CHICAGO

Crystolon Brick for LONG LINING LIFE!



Not only do CRYSTOLON Brick stretch the life of generator linings very considerably due to their refractoriness, chemical stability and resistance to the penetration of molten ash, but also these silicon carbide brick often pay for themselves the first year by savings in cleaning costs alone. Among water gas plants, in generator after generator, CRYSTOLON Brick are increasing lining life, reducing cleaning time. An important feature of CRYSTOLON Brick is that their dense, hard surface resists slag penetration and therefore the clinker ring is quickly broken free, leaving the surface of the lining clean and undamaged for further service.

NORTON COMPANY
WORCESTER 6, MASSACHUSETTS

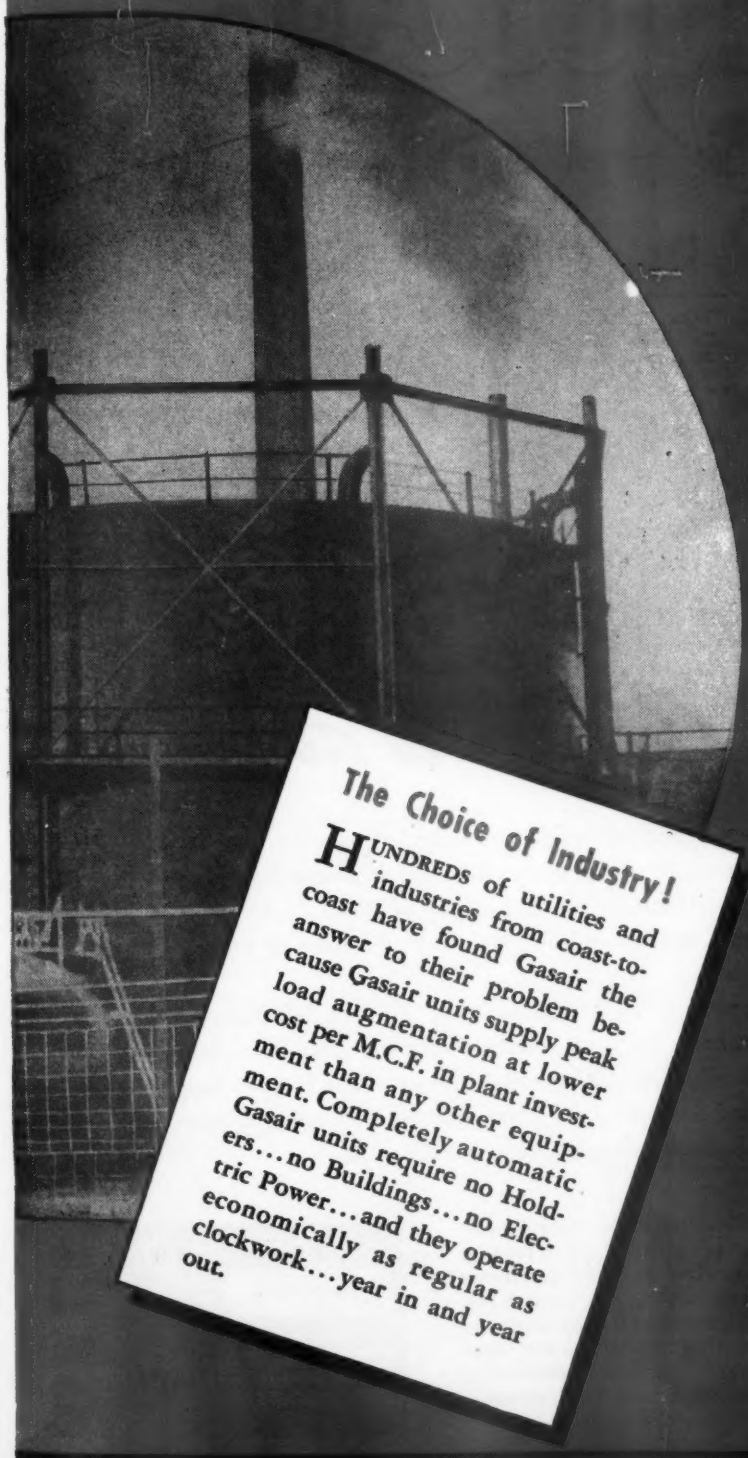
Norton Longer Lasting Refractories

Solving the problem

Gasair packaged gasplants can solve your problem whether it's standby . . . peak shaving or 100% operation. Our engineers, trained men and special equipment are ready to serve you. Call or write your nearest Pacific Gas office for a complete analysis today.

P G

of the GAS ENGINEER



The Choice of Industry!

HUNDREDS of utilities and industries from coast-to-coast have found Gasair the answer to their problem because Gasair units supply peak load augmentation at lower cost per M.C.F. in plant investment than any other equipment. Completely automatic Gasair units require no Holders...no Buildings...no Electric Power...and they operate economically as regular as clockwork...year in and year out.

PARTIAL LIST OF INSTALLATIONS

ALABAMA: Huntsville
ARIZONA: Yuma
CALIFORNIA: Los Angeles
COLORADO: Canon City
CONNECTICUT: Norwich
FLORIDA: Orlando
GEORGIA: Brunswick
IDAHO: Boise
ILLINOIS: Metropolis
INDIANA: Lawrenceburg
KANSAS: Eudora
KENTUCKY: Bowling Green
MASSACHUSETTS: Ware
MINNESOTA: Jasper
MISSOURI: Brookfield
NEVADA: Las Vegas
NEW MEXICO: Alamogordo
NEW YORK: New York City
Malone
Brooklyn
NORTH CAROLINA: Asheville
NORTH DAKOTA: Jamestown
OKLAHOMA: Tulsa
OREGON: Portland
SOUTH CAROLINA: Charleston
SOUTH DAKOTA: Watertown
TEXAS: Kerrville
WASHINGTON: Seattle
WISCONSIN: Eau Claire

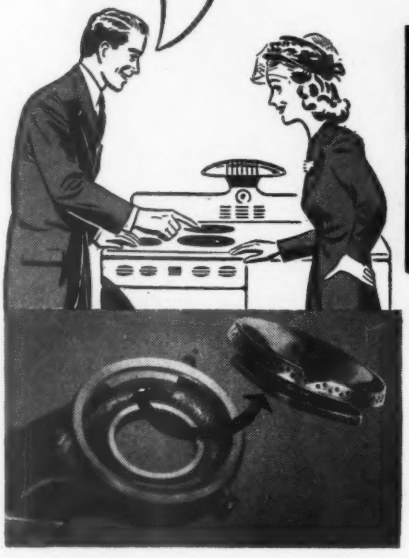
OVER 500 INSTALLATIONS IN THE UNITED STATES

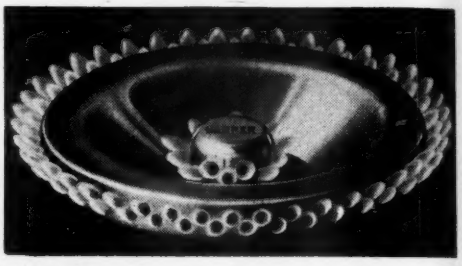
Combustion

This is the new, improved
HARPER CENTER SIMMER BURNER

HERE is the new Harper top burner that is winning widespread acclaim from the gas industry. It will find equal favor with housewives because it makes possible even better cooking results than users of the Harper Burner have enjoyed in the past.

Years of laboratory research and field tests contributed to the development of this scientifically engineered burner. The net result is that it makes possible fuel savings up to 39%, eliminates guess-work in cooking, saves pot-watching, keeps kitchens cooler, offers more healthful, less wasteful cooking . . . cleaner, odorless cooking.





▲ NEW, IMPROVED CONSTRUCTION!
Note how the two rows of flame ports are staggered, permitting better flame adjustment than is possible with ordinary top burners . . . flames do not "float off" or blow away . . . combustion is more efficient.

◀ EASIER TO CLEAN!
No castings or bolts to remove . . . a slight twist removes burner for cleaning.

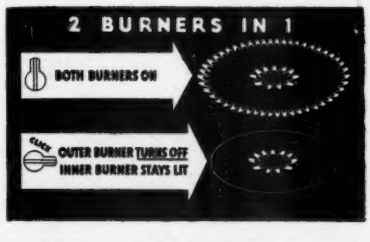
We're telling your Customers about it!

Before Buying Your
NEW RANGE
. . . make sure it has the famous
HARPER CENTER SIMMER BURNERS
Look inside for the booklet with this seal
The Harper Center Simmer Burners are superior to ordinary top burners because each Harper burner is really 2 burners in 1. As shown in diagram, the big outer burner brings foods to a quick boil. Turn handle until it "clicks" and the big burner goes out, leaving only the small, efficient inner burner lit to finish the cooking.
Only the separate Harper Center Simmer gives you the controlled low heats you need to keep foods warm for serving . . . to eliminate pot watching and boiling dry . . . to allow cooking with little water, which saves time and gas and keeps the average kitchen 9 degrees cooler. Only the Harper separate Center Simmer can help you so much in your cooking.
Insist on Harper Burners!
•18 Leading Gas Ranges are Harper Equipped
2 BURNERS IN 1
BOTH BURNERS ON
OUTER BURNER TURNS OFF
INNER BURNER STAYS LIT
HARPER-WYMAN COMPANY, CHICAGO 20

A NEW CONSUMER advertising program appearing in leading women's magazines tells prospective range buyers about the advantages of the Harper Center Simmer Burner. Many of these 21,500,000 readers will buy from *you*, and here's how you can trade them up to a higher-priced range:

We have prepared a FREE booklet, "How to Sell More Gas Ranges," which contains a series of quick, convincing sales floor demonstrations that graphically illustrate the superiority of the Harper Center Simmer Burner. Send for copies for your salesmen. Harper-Wyman Company, 8562 Vincennes Avenue, Chicago 20, Ill.

The Harper Center Simmer Burner operates on the unique principle of "2 burners in 1" . . . a STARTING BURNER for frying and to start foods boiling, plus a small, economical COOKING BURNER, to maintain the cooking . . . both controlled by the same handle. It is subject to finer gradations of low heats—greater control and economy—than any other top burner made.



HARPER CENTER SIMMER BURNER *". . . Holds the Lines for Gas"*

HARPER CENTER SIMMER

VOLUME 166
Number 1

AMERICAN GAS JOURNAL

ESTABLISHED 1859

WHOLE
NUMBER 3875

JANUARY 1947

PUBLISHED MONTHLY BY
AMERICAN GAS JOURNAL, Inc.
53 Park Place, New York 7

S. G. KRAKE, *President and Treasurer*

M. E. KELLEHER, *Secretary*

S. G. KRAKE, *Managing Editor*

H. T. MATTHEW, *Business Manager*

JAMES C. MUNN, *Midwest Representative*
2656 East 126th St., Cleveland 20, Ohio
Tel. Cedar 7783

J. A. KENDALL, *Pac. Coast Representative*
2676 Terminal Annex, Los Angeles 54
Tel. Atlantic 1-7272

Copyright, 1947, American Gas Journal Inc.

Subscription $2.00 per year U.S.A.; $3.00 Canada; $4.00 Foreign. Single copies 25 cts.

CONTENTS

The Gas Industry in 1946—R. H. Hargrove 13

Manufacturers Progress in 1946—D. P. O'Keefe 17

New Developments and Present Practice in Water Gas Manufacture—George R. Steere 21

Possibilities of Beyond the Mains for L.P.G. Service by City Gas Companies—I. J. Wynn 25

Southern Gas Association Plans for 36th Annual Convention .. 28

Large Volume Water Heating, Chapter VII Part 2—Malcolm B. Mackay 29

Employee Rating, Training and Executive Development Programs—Harry H. Judson 31

Survey of Heating Systems Favors Gas Units 35

Integration of California Gas Systems—Fred A. Herr 37

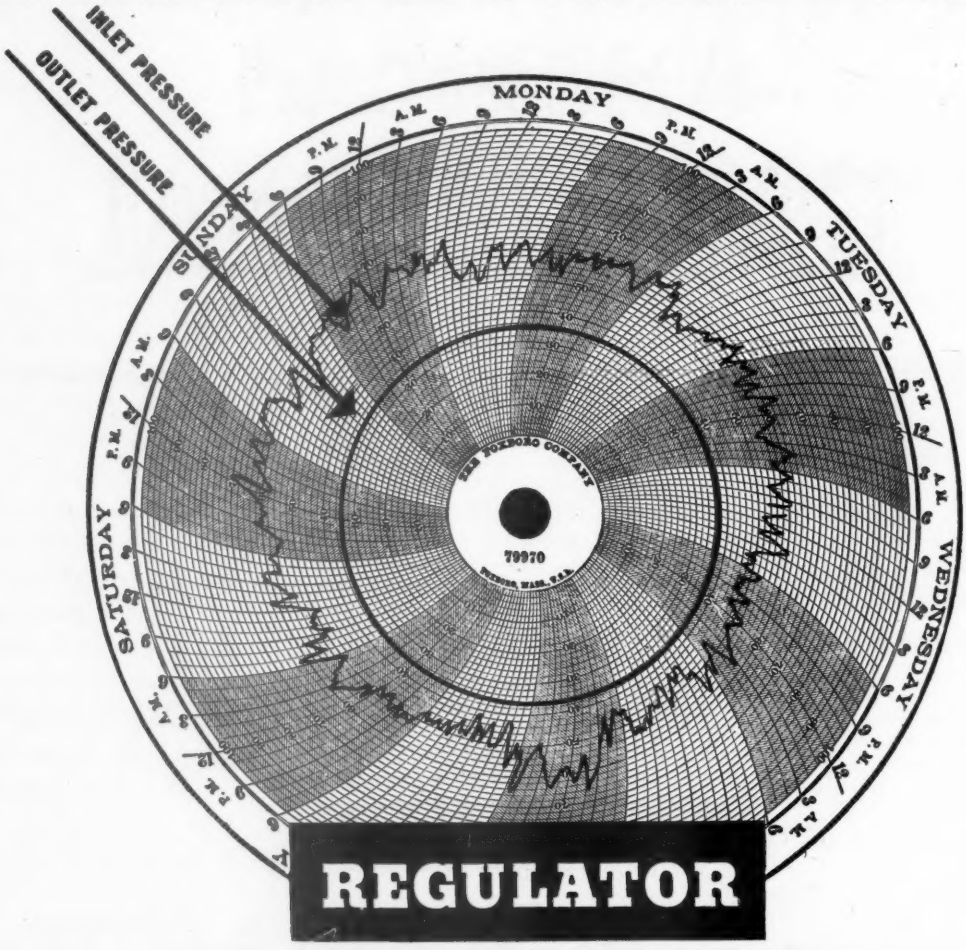
Appliance Selling in 1947 39

American Gas Association Activities 40

New Equipment and Appliances 42

News of the Gas Industry 43

LOOK AT THIS STORY ON A PRESSURE CURVE CHART



REGULATOR

Plus SENSITROL

Here's a chart that shows what happens when pressure variation is eliminated from a distribution system.

It's a true story of complete pressure regulation that thousands of gas men are reading with pleasure today—and which you can easily see on your own charts tomorrow.

It is, in short, a recording of the results obtained by companies everywhere with the use of SENSITROL.

SENSITROL, an auxiliary pilot loading system for gas pressure regulators, is a new and improved application of the well known pressure loading principle of regulator operation.

Photo by J. E. Hampson, Arkansas-Louisiana GasCo. **Controlling total supply and widely varying flow of gas at the city gate into a large community in the South.**

With SENSITROL a uniform outlet can be maintained regardless of wide variations in inlet pressure and flow rate. SENSITROL removes the "dip" from the pressure chart when low inlet and peak load coincide.

Service is dependable, uninterrupted. In case of pilot pressure failure or accident to the loading unit, the main regulator neither closes to interrupt service nor opens wide to create a hazard. In this event the SENSITROL becomes inoperative and the main regulator diaphragm takes over complete control of reduced pressure.

SENSITROL is easily applied to existing regulators without altering the present installation.

THE CHAPLIN-FULTON MANUFACTURING CO. PITTSBURGH 22, PA.

Carnegie Library of Pittsburgh

AMERICAN GAS JOURNAL
JANUARY 1947
VOLUME 166 No. 1

The Gas Industry in 1946

By
R. H. Hargrove
President, American Gas Association
Vice-President and General Manager, United Gas Pipe Line Co., Shreveport, La.

THE GAS INDUSTRY completed the year 1946 with an enviable record. On the one hand it demonstrated its traditional stability and soundness by passing through the difficult reconversion period without losing a step in its march of progress. All-time records were established in every category of the industry with the exception of industrial sales which levelled off from wartime peaks, reflecting general unsettled business conditions. On the other hand, the industry's vitality and determination to advance was made crystal clear by the industry's great postwar research and promotional program—an effort of unprecedented magnitude in the 130-year history of the industry. More people used gas than ever before and more innovations in gas appliances appeared on the market than in any year in the past decade. In short, it was a banner year, auguring well for the future prosperity of the industry.

Statistics

At the close of the year, customers of the gas utility companies reached a new high of 20,835,000, an increase of 2.7 per cent over 1945. Of this number, 9,401,000 consumers received natural gas, 8,973,000 were served with manufactured gas and 2,461,000 used mixed gas. In addition, the rapidly expanding liquefied petroleum gas industry accounted for an estimated more than 3,000,000 customers in the rural territories beyond the town gas mains.

Total industry revenues of the utility gas industry aggregated $1,205,992,000, an increase of 4 per cent as compared with the previous year. Most substantial increases occurred in the residential and commercial classifications while industrial revenues maintained their high 1945 levels.

Natural gas revenues were more than $705,000,000, an increase of 3.4 per cent, while revenues from manufactured gas jumped 5.6 per cent over 1945 to approximately $392,000,000. Mixed gas returns advanced 2.4 per cent to a total of $109,000,000.

Sales of natural gas, totaling 2,192,778,000 M cubic feet, were slightly greater than in the previous year, with substantial increases being recorded in residential and commercial gas. Manufactured gas sales were 412,053,000 M cubic feet or 4.2 per cent higher, while mixed gas sales advanced 3.7 per cent to 145,832,000 M cubic feet. In both instances, residential and commercial gas registered gains in the neighborhood of 8 per cent as compared with 1945.

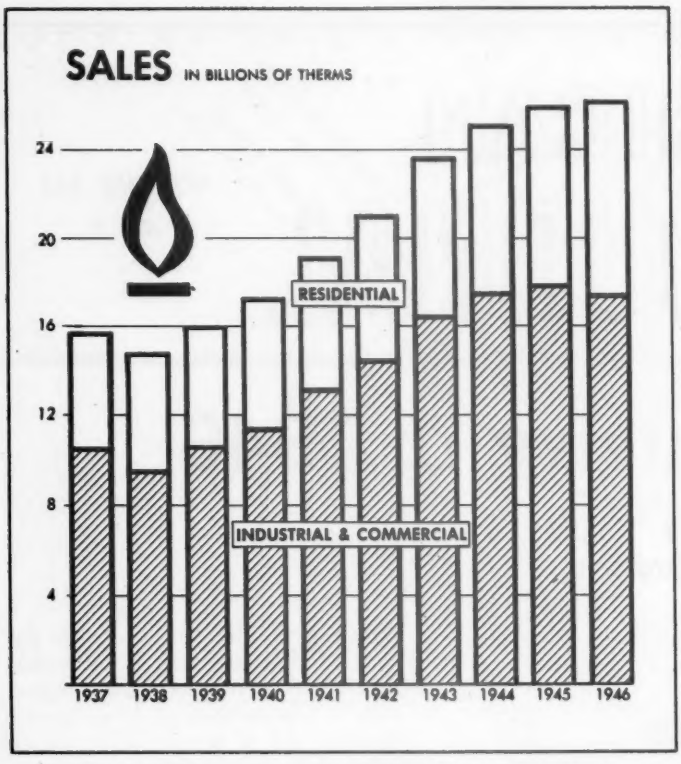
While, generally speaking, the gas industry's progress has been widely held to have been steady but unspectacular, a comparison of 1946 figures with those of a decade ago reveals significant if not startling advances. The gas industry, not including the LP-gas branch, has gained 26.6 per cent in total consumers attached to its lines, 77 per cent in sales volume and 57 per cent in total revenues.

Indicative of the rapid growth anticipated, it is estimated that in the four years, 1946 to 1949 inclusive, the gas utility industry will add 2,535,000 new customers (not including the LP-gas industry). Further, it is calculated that during this four-year period construction expenditures will be $653,323,000 for physical plant extension; $278,413,000 for ordinary maintenance expenditures; and $14,430,500 for house piping materials—a grand total of $946,168,500.

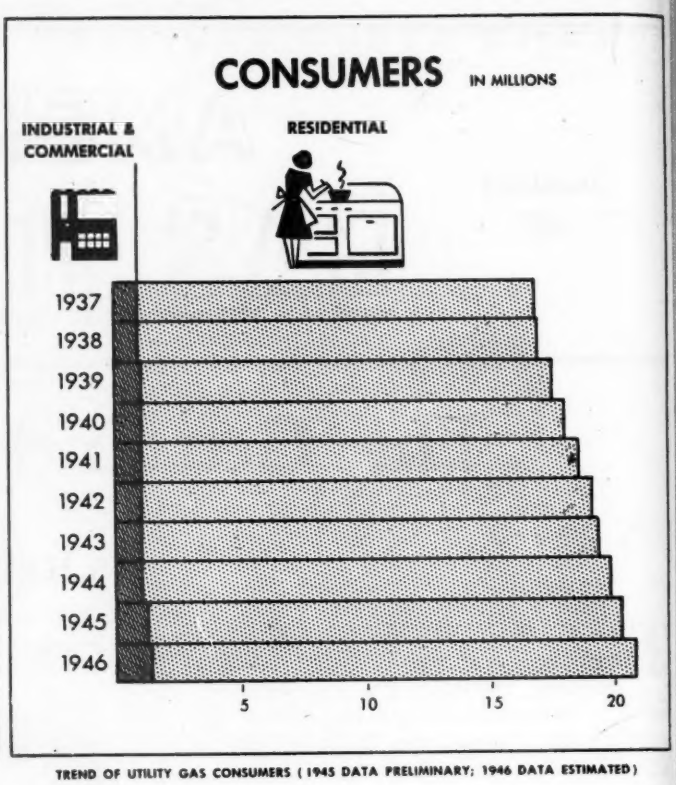
House Heating Avalanche

By far the most outstanding phenomenon of the year was the tremendous demand for gas heating. Whether or not a gas company was promoting house heating, this winter load has accumulated like a snowball to mammoth proportions. An avalanche of conversion burner sales occurred immediately following the rescinding of the natural gas limitation order in September, 1945. In many large metropolitan centers, such as Detroit dozens of new conversion burner manufacturers sprang up overnight to supply this demand.

Not only in the existing market but also in the new home field, a strong preference for gas heating was apparent. The National Housing Agency, for example, reported recently that of the 629,000 dwelling



TREND OF UTILITY GAS SALES (1945 DATA PRELIMINARY; 1946 DATA ESTIMATED)



TREND OF UTILITY GAS CONSUMERS (1945 DATA PRELIMINARY; 1946 DATA ESTIMATED)

units planned under the veterans' emergency housing program up to July 26, 1946, gas heating systems were specified in 52 per cent, with coal and oil amounting to 27 and 21 per cent respectively.

Appliance Production

All factors considered, creditable levels of appliance production were attained at the year's end. Sales of automatic gas water heaters totaled 1,250,000 units—an all-time high level. Expanded production facilities, when unhampered by labor and supply curtailments, will enable this branch of the industry to more than double its 1941 peak production.

The trend in water heaters is toward larger sizes to supply the increasing needs for instantly available supplies of hot water for automatic home laundry equipment, dishwashers, and other uses. A lucrative market for large volume gas water heaters was created with the introduction and rapid growth of chain-store laundryettes. Typical installations of the latter require 600 gallons of hot water per hour and are open from morning to night.

Gas range production during the year reached 1,600,000 units. A substantial portion of the range output was devoted to veterans' housing and the number of "apartment" or "cooker" models produced was considerably greater than in the peak production year of 1941. Production potential of the range manufacturers has jumped nearly 100 per cent as compared with 1941.

The total number of homes heated by gas increased more than 15 per cent during the year, with demand far outstripping the supply. Gas house heating units produced totalled more than 600,000.

Keeping pace with other branches of the industry, manufacturers of gas commercial and industrial equipment have substantially increased their production capacity.

Appliance Developments

Emerging from the strait-jacket of wartime restrictions but still bedevilled with peacetime material and labor problems, gas appliance and equipment manufacturers gave a remarkable exhibition of their products during the annual convention last fall. More than 160 separate manufacturers displayed hundreds of new or improved appliances in the largest exhibition of such equipment ever held.

Of particular interest in the domestic appliance field was the marked trend toward automatic operation of gas equipment apparent at the exhibition. For the first time at such an exposition, at least ten new manufacturers featured automatic lighting of appliances.

Among the new products which made their bow this year were an automatic gas-fired home disposal unit and a low pressure steam cooker which could be incorporated in a modern gas range or available as a separate unit. The latter innovation, offering a fourth cooking zone, is ideal for vegetable cooking or for defrosting frozen foods.

An interesting development in the house heating field was a midget gas furnace weighing 70 lbs., capable of heating two - and - one - half rooms, which had its origin in the airplane heaters developed during the war. Gas radiant heating, which turns walls, floors or ceilings into spacious heating panels—no radiators, no register grillwork—is gaining wide acceptance by builders who previously let it lie in the laboratory. The largest such system on record was installed late in 1946 in a factory building in Illinois. It consists of 40 miles of piping and will circulate 15,000 gallons of hot water 12 times an hour or a total circulation of 180,000 gallons per hour.

During the past year, the gas turbine caught the interest of people concerned with new primary sources of power and successful trials of a number of large oil-fired gas turbines were completed by the Navy. This initial success has prompted producers to experiment with gas-operated gas turbines.

Natural Gas Expansion

The natural gas industry in the past decade has grown at an accelerated pace. It now serves an area

with a population of 41 million in 33 states using a network of 220,000 miles of trunk lines and mains with a total production of four trillion cubic feet including other than utility sales, and a market value of 850 million dollars. It has advanced from 41 to 48 per cent in the number of customers served by the whole gas industry. Total assets are more than four billion dollars.

Approval of new long distance pipeline construction continues at a rapid pace. A new 1200-mile line from Texas to California with a capacity of 305 million cubic feet per day is now being built at a cost of 70 million dollars. Other pipeline projects approved and under way this past year involve a total additional mileage of 2,640 miles and an expenditure of 120 million dollars.

The impending disposal by the government of the Inch pipelines from Texas to the northeast has excited a lively interest on the part of the manufactured gas industry in the latter area in the economic possibilities of natural gas as a raw material in the manufactured gas process. A natural gas supply to large metropolitan areas of the northeast may come in the near future.

Proved recoverable reserves of natural gas in the United States as of December 31, 1945, were approximately 148 trillion cubic feet, the Association's Committee on Natural Gas Reserves has reported, thus indicating an ample supply to meet the stepped-up demand for many years to come.

Development of synthetic gasoline from natural gas that appears to be competitive with gasoline produced from petroleum is a notable recent event. A huge plant is being erected in Texas for this purpose and others are contemplated.

Also noteworthy is the increasing recognition of the chemical values represented by natural gas and its products. During the last decade a rapidly increasing chemical development, based on petroleum hydrocarbons, has occurred and the present trend is toward greatly increased utilization of the natural hydrocarbons as raw materials and intermediates. According to chemical experts, this spectacular trend reflects the growing realization by oil and gas companies and chemical companies that the natural hydrocarbons are ideal raw materials for synthetic chemicals.

The natural gas investigation sponsored by the Federal Power Commission held an important spotlight. Regional hearings were completed at Washington on August 2 after seven hearings in various parts of the country. More than 14,000 pages of testimony with over 450 exhibits were submitted by 314 expert witnesses from State and Federal commissions and bureaus, the gas, coal and railroad industries, labor unions and others. This record will form the basis of F.P.C. recommendations to the 1947 Congress.

Research and Promotional Plan

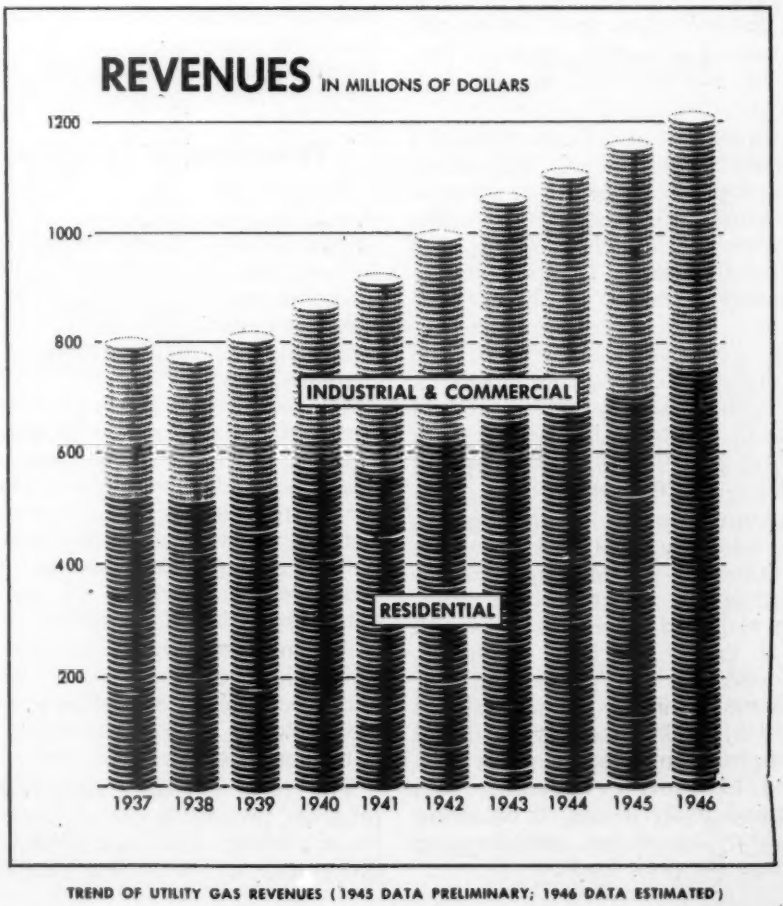
The Association's Research and Promotional Plan, launched October 1, 1944, has been the main motivating force responsible for the gas industry's rapid progress immediately following the war. Gas company subscriptions totaling more than $1,600,000 per year, in addition to the regular Association budget, are being expended for research, promotion and advertising.

An entirely new field of endeavor in the history of the Association is the gas production research feature of the industry plan, which calls for the discovery of better and cheaper methods of producing gas for the benefit of the ultimate consumer. Partly as a result of this activity, plant capacities to meet peak loads in the manufactured gas industry have been increased an estimated 35 per cent over the past two years.

A great deal has been accomplished in developing greater plant capacities through the reforming of hydrocarbon gases and by other equipment and process modifications. Pilot plant tests have been arranged on catalytic reforming of certain sulfur-free raw materials to produce blue gas, and the full possibilities of mixing a variety of gases in the interest of greater plant capacities are being further explored.

Much time has been devoted to the task of determining which new gas production processes offer sufficient promise to justify further research on a laboratory or pilot plant scale. Of those investigated, the fluidization process is being further explored on a laboratory research basis. The possibility of using high coke oil in a regenerative oil gas set for the production of a high B.t.u. gas is also scheduled for an early plant scale test. The analysis of the components of water gas tar in order to improve its dehydration and treatment and upgrade its commercial value is under way.

Basic studies have included laboratory determinations of the fundamental reactions between oxygen-steam and carbon, and between steam and carbon, and a search for sulfur-resistant catalysts.



TREND OF UTILITY GAS REVENUES (1945 DATA PRELIMINARY; 1946 DATA ESTIMATED)

Utilization Research

The gas industry, through its Association, has under way a comprehensive research program designed to improve domestic, industrial and commercial utilization and to develop new uses for gas. This work is carried on in close cooperation with the manufacturers of gas appliances and equipment.

Domestic gas research is furthered by analyzing the fundamental technical position of each present and proposed use of gas in the home, and assigning definite research projects to outstanding organizations in connection with each use. In addition, the gas flame is literally being torn apart in the laboratory to bring out every scientific factor that has a bearing on its efficiency and heating ability under conditions of use. Controls, safety devices and accessories are being thoroughly analyzed to bring out their maximum effectiveness.

Research projects in this program include cooking, water heating, space heating, summer air conditioning, venting, and burners, controls, and accessories. In every one of these fields, there is a steady and noticeable improvement in appliances, equipment and installation practices. Not only have new designs of standard appliances, which incorporate appealing and useful features, made their postwar appearance, but entirely new uses of gas are being made possible by postwar appliance developments.

In carrying out the gas industry's program of research, specialized technical projects have been assigned to Battelle Memorial Institute, Columbus; Case School of Applied Science, Cleveland; Institute of Gas Technology, Chicago; Arthur D. Little, Inc., Cambridge; Purdue Research Foundation, Lafayette; and the A.G.A. Testing Laboratories, Cleveland. Coordination is through technical advisory groups of outstanding gas company and appliance manufacturer engineers.

Pursuing a course of investigation in the field of natural gas comparable to work done in manufactured gas production, a report on the interchangeability of other fuel gases with natural gases has been published. Data covering the performance of appliances adjusted for natural gas when various kinds of supplemental gas mixtures are employed has been plotted to provide operators with quick and ready means of obtaining necessary factors for interchanging gas fuels for peak loads.

Other projects cover a variety of subjects ranging from exploration of new methods for the application of gas to cooking through the range of industrial and commercial uses to the possibilities of storing natural gas in hydrate form.

National Advertising

The gas industry's national advertising program, financed by gas utility companies throughout the country, spent in excess of $850,000 in 1946 for advertising gas appliances, equipment and services. This represents a stepping up of total circulation of magazines used from 47,500,000 to 57,000,000 and of total messages from 215,000,000 to 224,600,000. Gas companies were supplied with a complete newspaper advertising service whereby the impact of the national drive could be localized in gas-served areas.

Promotion of the domestic or household use of gas continues to feature kitchens equipped with the automatic gas range and gas refrigerator. A separate campaign is devoted to automatic gas water heating.

In the constantly expanding use of gas fuel in heavy industry and in commercial establishments such as hotels, restaurants and hospitals, promotion of large-volume gas sales was supported by the largest advertising expenditure to date. To bring the national promotion down to the local level, gas companies continued to be extensive users of newspaper advertising.

Promotional Activities

Promotional activities conducted during the past active year as a part of the enlarged industry plan have included the preparation of manuals on home laundries; the operation of the Commercial Cooking and New Freedom Gas Kitchen Promotional Bureaus; exhibitions in national shows; the sponsoring in promotional form of the Reference Manual of Modern Gas Service and New Freedom Gas Kitchen pamphlets. One of the most important of these steps has been the conduct of a public opinion poll on gas appliances and gas services for the purpose of guiding future promotional programs.

An enlarged program of new activities has been set up for 1947 to encompass the use of motion pictures, picture books and other methods new to the gas industry.

The New Freedom Gas Kitchen program, presenting gas in glamorous home settings, has been brought to every state in the nation. Inquiries concerning the modern, streamlined kitchens being promoted under this aggressive program have been received from 25 foreign countries, attesting to its universal appeal. Its influence is shown in the results of a recent survey of 340 gas companies which revealed a marked trend toward the sale of complete kitchens by gas companies, 91 of whom plan to sell complete units. Also significant was the fact that 138 of the reporting companies have already set up kitchen planning bureaus or plan to organize them.

One of the outstanding achievements of the year in the residential gas sales program was completion of the monumental work, "Reference Manual of Modern Gas Service," of which nearly 10,000 copies have been purchased by gas utility companies for distribution to local architects, builders and others. The manual is a complete and comprehensive handbook covering home planning, gas equipment, installation details, design factors, controls, and architects' specifications. It also includes manufacturers appliance data sheets.

Courses on residential gas salesmanship and the fundamentals of the gas industry were widely distributed among gas companies to indoctrinate general employees and to teach modern sales methods.

Supporting all this are expanded statistical and publicity services thoroughly covering all segments of the industry and reaching out beyond to the general public, the financial and business worlds and the technical professions. As a result, the story of the gas industry and its operations is being promoted on a scale far beyond anything attempted in the past.

Home Service

Major contributions to the national program of food conservation were made during the year by gas companies' home service departments throughout the country. Hundreds of home service women operating in their local communities prepared and publicized special recipes and menus to conserve wheat and other essential foods during the 1946 emergency to make food available to the hungry millions of the world. Demonstration kitchens and information centers were maintained and food preservation requests by the thousands were handled.

Tieing in with the building and modernization program of the nation's schools, the Association published a booklet, "Modern Kitchens for Homemaking Instruction" which

directed attention to home economics teaching facilities in high schools and colleges. Thousands of copies of this booklet were distributed through local gas companies.

A.G.A. Laboratories

The American Gas Association's Testing Laboratories in Cleveland and Los Angeles returned to their first year of full peacetime operations extending every possible aid to manufacturers in speeding production of approved gas appliances. Testing and inspecting of new models for compliance with approved standards, and checking appliances that are in production on assembly lines, arose above prewar levels at midyear.

Reflecting the resumption of gas appliance production, testing activities increased 220 per cent over last year, while factory inspections were greatly stepped up as production was resumed. The decided trend towards gas house heating was reflected in the fact that about 40 per cent of test work was devoted to gas-designed central-heating equipment in addition to extensive testing of conversion burners for existing house-heating installations.

Paralleling these services, the research projects assigned to the Laboratories were likewise expanded. Activities in this field increased some 30 per cent over 1945. Advances in appliance efficiency, performance and design were pioneered while kitchen ventilation studies attracted wide attention.

Industrial and Commercial Gas

Many new uses for industrial gas which were developed during the war are now in service in the processing of products made of metal and other materials. Industries using heat in their manufacturing processes, and there are few indeed which do not, have come to look to gas as the premier industrial fuel for accuracy and quality of performance as well as speed and labor saving. These factors are well exemplified in the recently-designed gas furnaces, ovens and special industrial gas equipment. These include large paint drying and finishing ovens for automobile body drying, radiant gas burners for ceramic furnaces and high-speed direct flame heat-treating.

Commercial gas sales reached an all-time high during the past year, due largely to the increase in cooking in public eating places. Gas cooks more than 90 per cent of the 62 million meals which are now served daily in hotels and restaurants. Some of the new models of heavy duty equipment serving this profitable market are being produced in stainless metal alloys offering longer life, more attractive appearance and ease of cleaning.

Technical Developments

The Association continued to sponsor technical conferences covering gas production, chemical, distribution and motor vehicle practices. It also carried on many technical research projects, published engineering handbooks and manuals, issued safe practice pamphlets, and generally contributed to the advancement of gas operating techniques.

A development of interest to the technical men was the introduction on an experimental basis of plastic tubing for gas service piping as a substitute for conventional metallic pipe. At least one large gas utility completed extensive tests on such gas arteries and reported promising results.

The use of radio for prompt communication in emergencies and for other purposes is increasing steadily. In 1944, less than 30 gas companies were using this modern vehicle while early in 1946, it was found that 57 gas companies were using this form of communication.

Conclusion

It is evident from this brief summary that the gas industry has increased its stature as a vital factor in the nation's economy and in the everyday lives of the people. Its record is one of constructive achievement and its pipelines to the future are strong indeed. We have passed the 1946 milestone and look forward confidently to the next.

Manufacturers Progress in 1946

By

D. P. O'Keefe

Pres. Gas Appliance Manufacturers Association

DESPITE continuing work stoppages and material shortages, manufacturers of gas appliances and equipment made substantial progress during 1946 towards filling distribution pipe lines and in supplying the unprecedented demand for gas appliances and equipment, which is expected to result in sales of upwards of five billion dollars in the next ten-year period.

What the production picture will be in 1947 is impossible to estimate in the face of present conditions. About all that can be said is that every manufacturer in the gas industry, will do everything in his power to produce all the goods he can to fill consumer demands and to assist dealers and sales outlets to carry on their business. Seldom in history has the need of unhampered production been so great and so essential.

Gas Ranges

Gas range production during 1946 reached 1,600,000 units. A substantial portion of range production was devoted to Veterans' Housing Programs, and the number of "apartment" and "cooker" models produced was considerably greater than in the record production year of 1941.

Gas range manufacturers' production facilities have been increased more than 100% over pre-war capacity. Despite this increased capacity, it will be some time before the industry can meet consumer demands. The indications are that 1947 range production may not exceed 1941 figures due to the fact that manufacturers, in general, cannot expect to obtain more steel in 1947 than they received in 1941.

Of the 20,950,000 homes in the United States and Canada which use gas for cooking, nearly 12,500,000 have obsolete gas ranges which are more than ten years old. The expanding L-P gas market, already supplying gas for cooking to one-seventh

(Continued on page 50)

RESOLUTION FOR 1947...

A resolution for the New Year well worth adopting is to *standardize on Standardized* Mechanical Joint Cast Iron Pipe for new mains. A large number of important gas utilities have already taken such action for the following reasons:

FIRST: Standardized Mechanical Joint Cast Iron Pipe means bottle-tight, long-lived mains.

SECOND: It can be easily and quickly installed by men without previous experience with the joint.

THIRD: More lengths can be laid per day with a minimum of equipment and small crews.

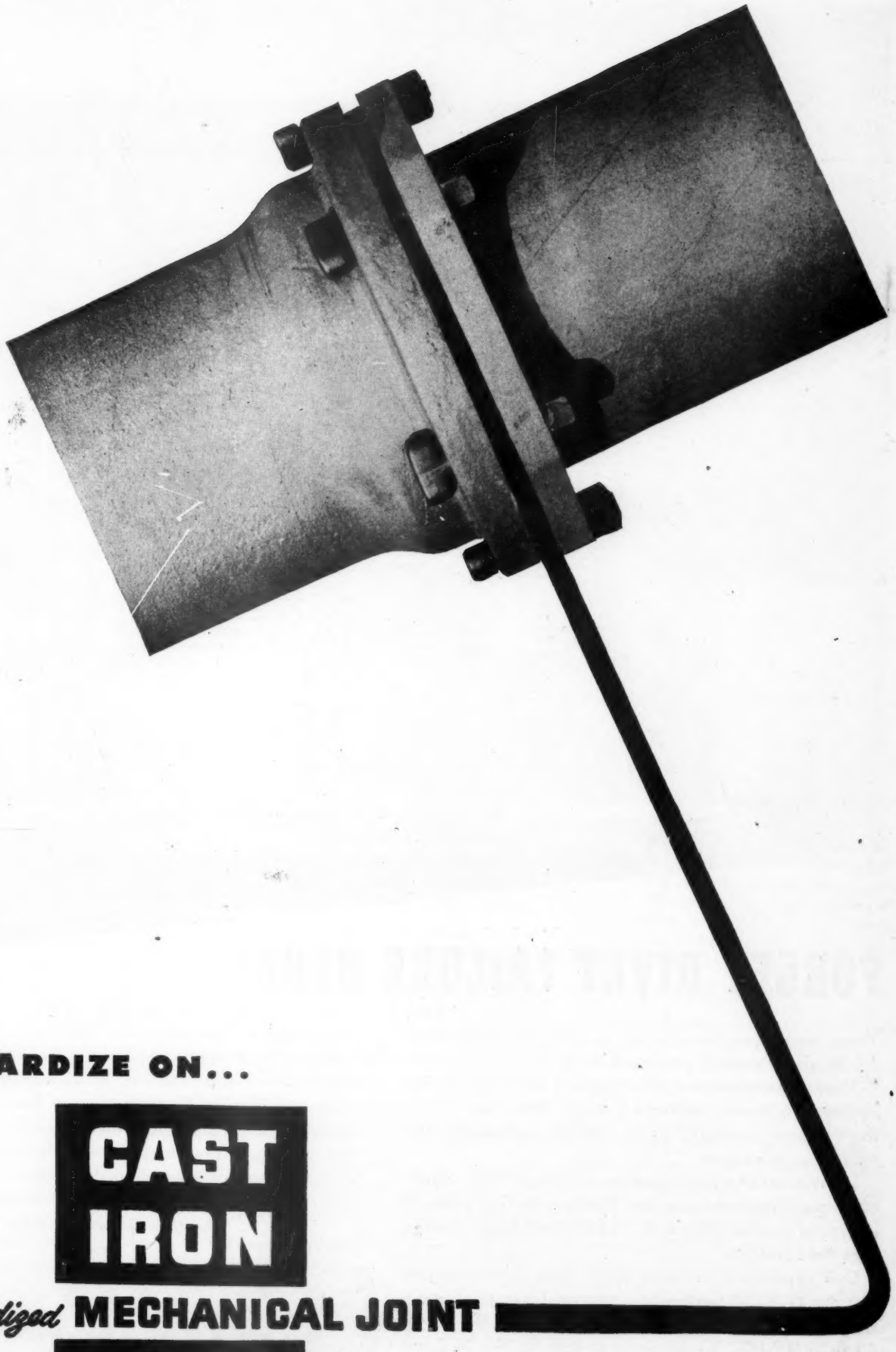
FOURTH: Less delays in wet weather and less difficulty in a wet trench.

FIFTH: All fittings and accessories are standardized and interchangeable with those furnished by other makers of mechanical joint cast iron pipe.

So, along with best wishes for the New Year, may we again suggest that you . . . . . .

Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, Peoples Gas Bldg., Chicago 3, Ill.

Nearly a century before mechanical joint pipe was developed, this 10-inch cast iron bell-and-spigot pipe was laid in Baltimore 113 years ago. When uncovered for inspection after a century of service it was in excellent condition. It is America's oldest gas main.

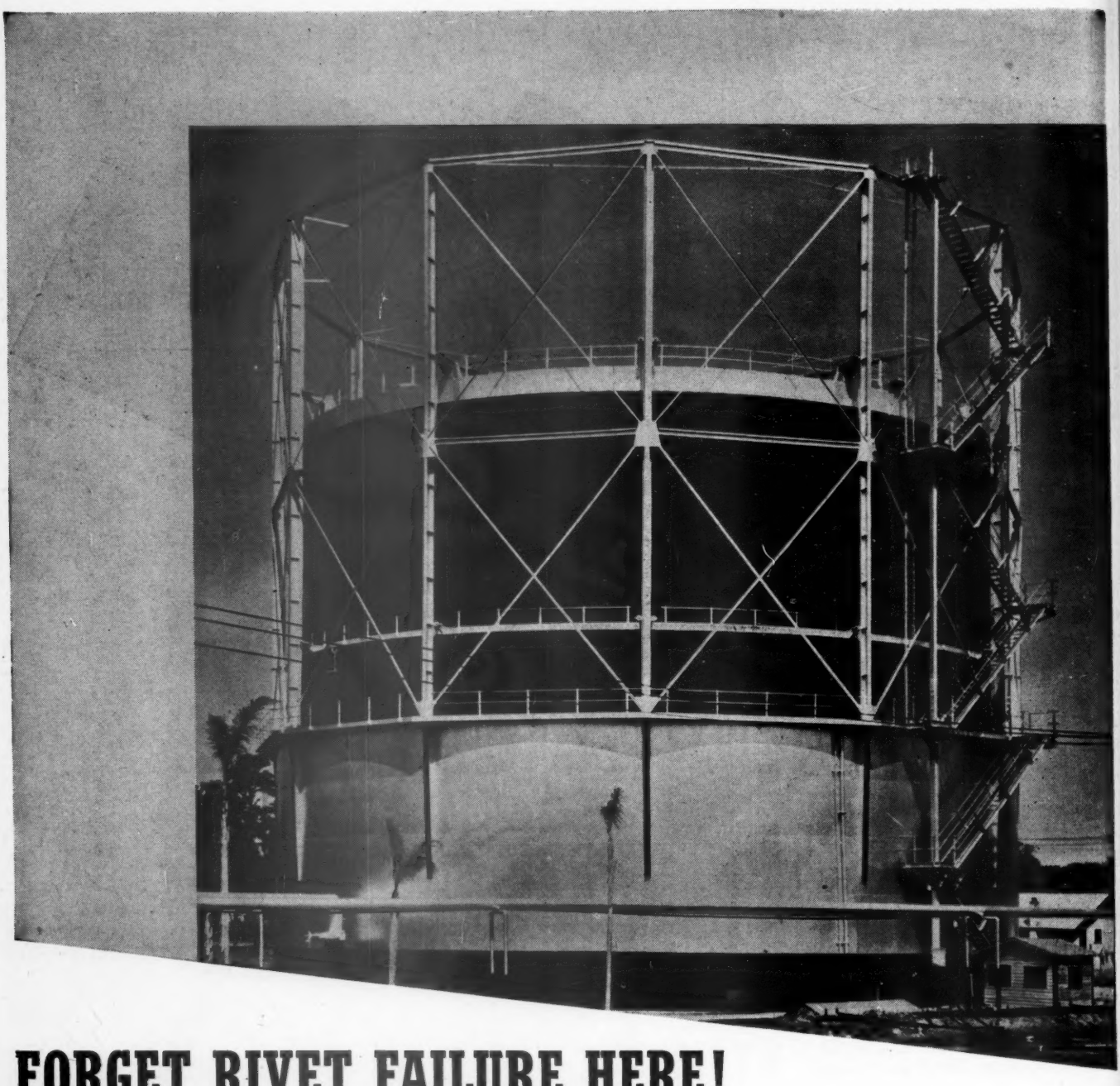


STANDARDIZE ON...

CAST IRON

Standardized **MECHANICAL JOINT**

PIPE



FORGET RIVET FAILURE HERE!

There *aren't* any rivets to fail in this Stacey Brothers All-Welded Panel Type Gas Holder.

That's one important advantage of this type of construction, a Stacey Brothers feature. There are others, too—greater strength, more efficient operation, less maintenance expense.

It's reasons like these that have influenced the choice of Stacey Brothers for tanks. The installation pictured is typical—a 500,000 cu. ft. All-Welded Panel Design Wet Seal Holder.

Our experience includes more than three hundred distinct types of tanks—any practical size or shape—with gas holders ranging in capacities from 100 cu. ft. up to 10,000,000. We fabricate as light as No. 16 gauge sheet metal, and up to three inches thick.

Whether your needs are standard—or unusual—there's a Stacey Brothers Holder, *custom built* to fit your requirements. No problem is too tough for us—or too routine. We'll take *complete* responsibility for design, manufacture and erection. That way you save both time and money. We make it our business to deliver dependable, economical holder capacity. May we submit our quotation and recommendations, based on your own specifications and drawings?

STACEY BROTHERS GAS CONSTRUCTION CO.
One of the Dresser Industries
5535 VINE STREET - CINCINNATI 16, OHIO

Stacey Brothers
ALL-WELDED GAS HOLDERS

New Developments and Present Practices In Water Gas Manufacture

By

George R. Steere

Gas Engineer
Ipswich, Mass.

ALTHOUGH the process of making carburetted blue gas is one of the oldest methods of gas making, it is still going strong. The latest available data the A.G.A. could supply at this time was for the year 1944. This showed that 67.6% of all gas produced by the industry was water gas. It is therefore evident that any improvement in the art of making water gas is of real importance.

The Statistical Department of the A.G.A. supplied the following information on the gas produced and purchased for the year 1944 by the various utilities reporting:

As this data was secured by companies, it was impossible to show the number and size of the units used in producing the water gas.

However, information was available showing that the utilities with a revenue, before any deductions, of less than $25,000.00 annually, produced 14% of the total for the industry, or approximately 45,800,000 M for the year 1944. If it can be assumed that most of this gas was made in small water gas machines, then the small machines produced about 20% of the water gas made that year. As the small plants seldom use more than one machine at a time and generally for only part of the day, it would seem that a large proportion of the production men are interested in what can be done to improve conditions on the smaller sized units. This discussion is therefore aimed primarily at showing what has been done, and what is being attempted, to cut the cost of gas in this type of plant.

For the purpose of this discussion, the factors entering into the cost of producing water gas are divided into four groups.

Material and supplies
Labor
Efficiency of operation
Carrying charges on investment

Materials

Under this heading, in this case, would be included all of the supplies needed, such as fuel, oil, water, power, repair parts, oxide, etc. It is obvious that the location of the plant, type of load, and many other things enter into the selection of the most suitable materials. Savings have been made in many plants by changing from one material to another when studies have shown that it is advisable. The use of soft coal in place of coke, heavy or medium grade oil in place of gas oil, and tar in place of coal, for boiler fuel are a few of such changes that have been made to advantage.

Some very small plants have reduced their cost of gas by going to Propane or Butane air and shutting down their existing plants. Others are using L.P. gases for peak loads, either mixed with air, reformed, or as cold enrichment. What should be done in any particular plant depends on local conditions.

Photo Grady
George R. Steere

Some odd materials have at times been used for making water gas. A Mr. Lindsey, who was in charge of production at the gas plant in Manila just previous to and during part of the time the Japs were there, told of making water gas with new Chinese paper currency that was being destroyed before the arrival of the Japs. He also told of using cocoanut oil for enrichment when they ran out of gas oil. He said that both of these substitutions worked out very well and required little or no adjustment in the method of operation.

Labor

As we all know, labor is one of the most important and troublesome factors that enters into the cost of gas, or anything else nowadays. The smaller the plant the larger percentage of the total cost it represents. In other words the best way to reduce labor cost per M is to produce more gas per man hour. However, many plants are operating less than a full shift or two full shifts per day for many months of the year or they do not have sufficient holder capacity to make the required gas in one continuous run. To overcome these conditions, and reduce labor costs, added investment is generally needed for equipment that will speed up production, increase storage capacity, or replace men. Many times added sendout serves the same purpose by

	Produced	*Purchased*	*Total*
	(In thousands of Mcf.)		
Water gas	220,930		220,930
Coke oven gas	63,881	104,990	168,871
Retort coal gas	15,429		15,429
Oil gas	8,734		8,734
Reformed oil refinery gas	5,322		5,322
Oil refinery gas		2,347	2,347
Natural gas		74,959	74,959
Reformed natural gas	8,652		8,652
Butane-air	3,776		3,776
Total	326,724	182,296	509,020

fully utilizing the equipment already on hand.

In most cases increased hourly make is the surest way to reduce labor costs. To secure this added capacity, many studies have been made and much has been written. The Gas Production Committee of the A.G.A. recently published their report on this subject. Several new attempts are being made which will be discussed later.

Efficiency of Operation

The efficient use of the materials from which gas is made has been given a great deal of attention for many years. This has resulted in such a high Btu. recovery in many plants that there is little left to be gained. One plant went so far with heat recovery a few years ago that the blast gases settled back to the ground and the heat loss had to be increased to overcome the condition. Considerable publicity has been given to the value of such auxiliaries as automatic clinkering generators, automatic operating machines, automatic charging machines, waste heat boilers and accumulators. However, for the plant operating their machine for only part of the day, it is often found that the savings that can be made under these conditions will not justify the investment necessary for most of these refinements. Where it is possible to secure or train operators with intelligence and ambition, much of the benefits to be derived from such auxiliaries can be secured without them. Whether the machine is fully automatic or not, the value of high grade operators cannot be over-stressed.

Many attempts have been made and are now being made to find less expensive ways of securing the advantages of automatic control and heat recovery. One such attempt that is still being used to advantage in some places is the use of water in the top of the superheater in place of backrun steam.

Proper grouping of controls, timing devices and well designed charging equipment to save time are a few of the others.

In general, it will be found that high efficiency goes with high rate of make, as they both require a careful balance of heats in the set and maximum make time to total running time.

Carrying Charges

It is common practice among operating men to talk and think of holder cost as the cost of gas. However, the carrying charges on the investment necessary to make, store and deliver it to the customer have to be considered in making any plans for improvement or replacement of any of the equipment involved.

Present cost of construction is so high and varies so rapidly, due to existing labor and material shortages, that it is not possible to make accurate estimates. How long before prices will stabilize no one knows, but it seems like a good guess that they will never get back to the level of the twenties and thirties. Studies made in 1944, under somewhat better conditions, and based on quotations and costs at that time, indicated that a plant consisting of two eight-foot machines, one to be a spare for the other, and with all other necessary auxiliaries, buildings, holders, etc., would cost approximately $600,000. At full load for one machine for 20 hours a day, the carrying charges at 15% would be only 12.3 cents per M. However, few, if any, small plants have a base load of this character. The plant for which this study was made had a yearly sendout of only 257,000 M with double the daily sendout in the winter as in the summer.

This would be more nearly the average to be expected when building a plant of this size and allowing for future growth. The carrying charges with the sendout at this level would be 35 cents per M. This serves to illustrate the importance of loading up plant equipment to the maximum to reduce the overall cost of gas.

Whether or not it pays to make additional investment to take on added load requires careful study of the particular case with due consideration being given to the added carrying charges involved.

Summarizing this analysis of the factors governing the cost of gas, it is apparent that maximum capacity from equipment used is very important if costs are to be reduced.

A great deal has already been accomplished in increasing set capacity. The standard rating of water gas machines, for many years, was 2750 cu. ft. per sq. ft. of grate area per hour, when using gas oil and coke. With the advent of the backrun cycle this went up to about 3200 cu. ft. This has been increased in the last few years to where many machines have been averaging over 4000 and some as high as 4200 cu. ft. per sq. ft. of grade area per hr.

The principal reasons for this increase have been:

1. **Higher blasting rates**
2. **Faster valve action**
3. **Shorter cycles**
4. **More accurate heat control**
5. **Elimination of bottlenecks**

Higher blasting rates require not only blowers capable of delivering more air per minute but also at much higher pressures than was formerly thought necessary.

Blowers now being used in many of the plants, securing the high capacity mentioned, are capable of delivering double the air formerly used at pressures between 70″ and 80″ wg.

An excellent paper on the subject of the proper selection of blowers entitled "Increasing Water Gas Set Capacity" was given by Mr. B. P. Jenkins,* Supt. of the Fall River Gas Works Co. a few months ago. It also discussed the cause of blown over fuel at high rate of blast and one way to overcome the difficulty.

High blasting rates increase the percentage of make time to total time as well as tending to deepen the high heat zone in the fuel bed, both of which will increase the make per hour.

The importance of fast valve action to permit rapid changes from one part of the cycle to another should be evident. No gas is being made or heat being stored during the time taken by these changes. If the valve action is slow, the time necessary before the next valve can be moved must be more, and the total time lost unnecessarily often amounts to enough for additional runs per hour.

Shorter cycles and more accurate heat control go together and cannot be secured without fast valve action. High capacity cannot be obtained by trying to get the last small amount of gas out of a cool fire. It is also true that a much higher rate of oil input and more uniform cracking temperature can be had with more frequent re-heating of the checkers. In the case of small machines with hand operation the human element enters into the matter of how short the cycle should be.

By the re-arrangement of levers and the hydraulic operation of all valves or at least the remote ones, it is often possible to operate a four minute cycle by hand much easier than a former five or six minute cycle. Clocks for indicating the exact time for cycle changes are a great help when hand operating a fast cycle. Blasting to the exact heat required and then going on the run also speeds up the operation and gives far more satisfactory heat control. Much time can often be saved by a re-design or re-arrangement of the fuel charging equipment so that the minimum

---

* *Presented before Operating Division, New England Gas Association, Providence, R. I., May 22, 1946.*

time and effort are required in charging the machine. By such an arrangement charging time has been reduced to an average of 45 seconds per charge with no undue strain on the operator.

Heat Control

On the matter of accurate heat control, it is important that the gas maker should know all the time that he is properly cracking the oil instead of just blasting to some arbitrary temperature selected days or weeks before. Either the trowl test or the seal pot can be used to determine whether the proper heats are being carried for the conditions existing at the time. Changes in the quality of the oil, speed of blue gas production, and rate of oil input, all require an adjustment of the heat to be carried if proper cracking of the oil is to be obtained. It is also important that the heats in the superheater be properly distributed. A thermocouple should be installed about six courses from the outlet end of the superheater and the temperature at this point held between 150 and 200 degrees lower than the control temperature. The highest temperature in the machine should be at the point of oil admission.

The elimination of bottlenecks, whatever they may be, is of course necessary to not only make the gas, but to be able to handle the increased make throughout the plant.

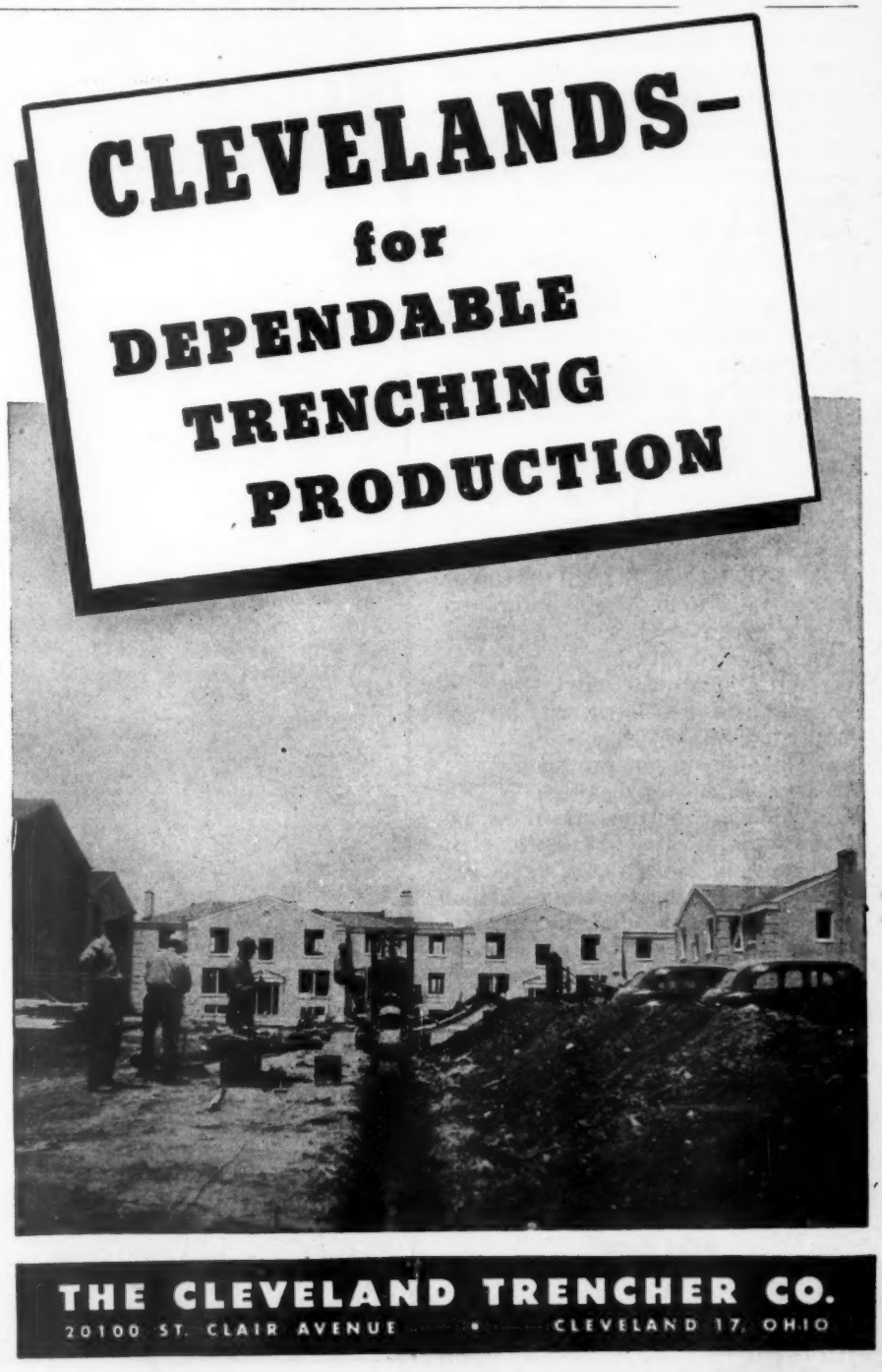
One of the limiting factors to high rate of make already mentioned is the difficulty in preventing the fuel from carrying over with the blast gas. As brought out in the article by Mr. Jenkins, studies have shown that this occurs before and after the use of the carburetor air valve. Regardless of the capacity and pressure of the blower, the pressure conditions in the machine and in the blast header are such that far more air will pass through the fire with any given valve opening when the carburetor valve is closed than when it is open. As the carburetor air valve creeps to the open position the rate of generator air decreases. Studies have been made on several machines which show that if the generator air rate could be held constant, at a rate much less than the peaks then encountered, the blasting time could be reduced as much as 30%. This would allow time for added runs per hour with consequent increase in hourly capacity. Makeshift equipment to prove the idea is now in use in one plant and is holding a constant rate of air to the generator. Equipment designed to control this air flow at any given rate, using the apparatus for voltage regulation, adapted to this service, is now being built for another plant. This type of control will provide another way to increase the capacity of a water gas machine at low expense.

Another change in design for preventing blown-over fuel and increasing machine capacity has recently been reported by Mr. Ed. Kennedy* of the Malden & Melrose Gas Light Co. This consists of tapering the brickwork in the ash pit to form a nozzle having an opening at the grate level of about 46% of the normal grate area. This change is given credit for having made possible an increase in the capacity of the machine of 56% and of having made it possible to use as high as 50" pressure in the ash pit when using ¾" verticle retort house coke, with little or no blown over fuel. The machine reported on, had a 11'-6" dia. generator and it is reported that the fuel bed now burns out in the center more rapidly than at the sides instead of the other way round as it formerly had. Attempts to duplicate this performance on small machines with soft coal as fuel have not met with the same success so far, although more may be accomplished with further experience.

Reforming

Where refinery gas, natural gas, or L.P. gases are available at suitable

* *See American Gas Journal, December, 1946, page 15.—Ed.*



prices, a tremendous increase in machine capacity can be obtained by reforming these gases. Several good papers have been published recently on this subject, so there is no need to go into the details at this time. The possibilities, for plants having insufficient capacity to meet peak load periods, to solve their problem in this manner is presented in a recent paper by Hall Henry. He points out that added load, such as house heating, can often be taken on profitably by taking care of the short time peaks thus created with L.P. gases either reformed, mixed with air, or used as cold enrichment. A great many plants both large and small are now doing this and it seems to be working out to be well worth while.

Clinkering

A more radical change in design for water gas machines was proposed by the writer some time ago,* which has created considerable interest. This was aimed at the elimination of hard sidewall clinker, increased capacity, greater heat recovery, and the complete recovery of the volatile when soft coal is used for a fuel.

The design does not include the use of automatic clinkering generators or waste heat boilers, thus reducing the cost to that extent and widening the field where its use can be justified.

Briefly, the change from standard design consists of blasting down through the fuel bed with a connection from the bottom of the generator to the carburetor and from the top of the generator to the washbox through the reversing valve. This locates the highest heat zone in the fire near the top of the generator where there is the least ash in the fuel bed. As the depth of fuel bed, where the heats are above the fusion point of the ash, is narrow, the theory is that the ash released by the consumption of carbon would rapidly travel out of this high heat zone and solidify. This would prevent large accumulations from slagging into a hard clinker. By keeping the high heat zone away from the metal supports for the fire, it will be possible to use the maximum amount of backrun steam for heat recovery without fear of damaging the grates or the formation of a hard clinker. In the design, the non-combustible material is to be passed through a water seal and removed by a suitable conveyor, at the same rate that it is produced.

Pilot Plant

Presented to a group of New England operating men, it looked good enough for them to propose it to the A.G.A. Gas Production Research Committee for investigation. Since then it has been tested in a pilot machine at the Battelle Memorial Institute for the claim on clinker behavior. Their report, although not favorable in general tone, states that they operated in this manner for a thirteen hour test run and that the fire behaved much as claimed with the clinker forming in small pieces not exceeding six inches in diameter and traveling down through the generator.

As the shaking grate they had provided would not pass the larger pieces, they collected in the lower part of the generator.

Before the report on the work at Battelle was completed, work was started on an 11′ machine to change it over to this design and find out just what would happen in normal operation. At the time of this writing, the construction work is nearly complete, and results from this installation will be available soon.

Paper presented at meeting of Mid-Southeastern Gas Association, Raleigh, N. C., November 21-22, 1946.

**See* AMERICAN GAS JOURNAL, *July, 1944, p. 17.—Ed.*

POWER PLUS!
THAT'S SYNTRON

100% Self-Contained
Gasoline Hammer

PAVING BREAKERS

Save Time for Your Crews

Save Money for You

The explosive energy of gasoline — producing 2000 heavy, powerful blows per minute of a free Hammer Piston—make short work of

Busting
Cutting
Digging
Tamping

Write for catalog folder

SYNTRON CO.
920 Lexington, Homer City, Pa.

Possibilities of Beyond the Mains L.P.G. Service by City Gas Companies

By
I. J. Wynn
Gainesville Gas Co.
Gainesville, Fla.

SOMETIMES when I arrive in a town and look around and survey all the potential possibilities for Gas, seeing restaurants located close by, hotels and all different classes of consumers, I wonder what man, or group of men, realized the need for a gas property and were far-sighted enough to build here and supply this need.

Practically all of the oldest Gas Utilities began with the old coal retort sets. Then Water Gas came along and began operating, picking up the surplus load, using coke from the old retorts. Finally all new installations were made with Water Gas machines and coke was shipped in instead of using from the retorts.

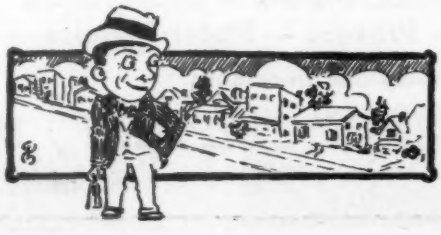
During this time a by-product from the oil wells was being wasted until a means was found for breaking it up into its component parts. Someone discovered Propane could be used for the same purposes, and Butane, and Butane-Propane mixes. As a consequence L.P.G. dealers began business. The Gas Utilities ignored this as a possible profitable business. They did not want to waste their efforts in this direction. Today there are approximately 6000 L.P.G. dealers in the U. S. serving customers, both domestic, commercial and industrial. It has grown from an infant into a large place of its own.

Electricity is the greatest and most universal competitor of the Gas Industry. Why did the Gas Utility begin operations in the towns to start with? To supply the need for this product and to give prospective customers this service. Today towns are still growing and the need for gas service beyond the mains is here. Customers who have lived in congested areas and have moved out beyond the mains are demanding this service, the same as electricity for lights. Someone is going to supply this need.

Two Methods Available

There are two ways this can be handled: One by the Utility entering this field and giving this service; the other by cooperative L.P.G. dealers. But this service must be rendered by the Gas Utility or by the L.P.G. dealers.

First, let us consider the Gas Utility. Most Utilities are using L.P.G. for peak loads. This means installation of L.P.G. storage, pumping facilities and all necessary equipment. Some Utilities are converting to 100% Propane-Air. Once this is all installed they are in the L.P.G. business except for the trucks to serve the customers beyond the mains and the method of delivery. This opens up a vast territory of new business. In buying merchandise, some is bought L.P.G. equipped; the other manufactured equipped. A new sub-division starts beyond the mains. Houses go up fast. One large tank is installed and multiple service is started. The only thing necessary is the extension of the lines, installation of the meter, and appliances are ready to connect. New mains are almost impossible now, but when they are available and the load in that territory warrants, the main is extended, the tank removed to another location and everyone is happy. They have received the service they wanted and on time. In days past when a town was growing and the Gas Utility failed to extend its mains, it was similar to saying "This is the only territory I want and here we stop. . . ." You know of Utilities which have taken this attitude and the town has grown off and left them. Just as if the Gas Company built a fence around themselves to keep from looking over it and seeing what was further on. Today vast industries are opening up, demanding the use of Gas beyond the reach of the mains. The tendency to move out and spread out is strong both for commercial eating places and for residential purposes. Why not enter this field and render this service to the public?



We entered the field of L.P.G. for service beyond the mains in 1938. I can very well remember the first three tanks which we installed. We were as proud of this installation as the farsighted men who, in years gone by, began the installation of a Gas Utility to serve a community. We purchased our Butane Gas from a supplier in a nearby town, trucking it into our city and serving our installations at periodic intervals. From these first three tanks business continued to grow. Before Camp Blanding opened up, we had a salesman in this territory working hard, as we realized that the new Home Guards Camp being built would some day be taken over by the Army. Later the Army came in overnight and took possession of this site and all facilities. During the life of Camp Blanding, we served five big main cafeterias, first-aid stations, hospital area, dental clinics, etc. In addition to the camp proper we served the surrounding area including restaurants, rooming houses and places of entertainment. When Camp Blanding closed down we lost this consumer, however, since that time we have more than made it up in other installations.

At the present time there is one sub-division of forty new homes going up, twenty on each side of the street. On this job, which is approximately one-half mile beyond the mains, we are running an intermediate pressure of five pounds in the rear of the houses, giving individual regulators to each consumer. This installation is served by a tank at each end of the twenty houses connected together by a one-inch main. In addition to this we are having calls daily from groups of one to five houses in our territory desiring our service. At the present time we are serving the majority of the school lunch rooms located at different points in our County. We have further found that, to give proper service and keep our customers satisfied, it is best not to make deliveries beyond the radius of approximately thirty miles.

Revenue Beyond the Mains

Figures on our L.P.G. consumers show that the meter consumption per customer is higher, as a rule, than on our Manufactured Gas consumers. According to our Physical Report for the Year 1945, approximately 28% of our gross revenue was derived from our consumers beyond the mains. Due to the increased costs of labor, solid fuels and oils at our manufacturing plant, we find that our net revenue is 12% higher on an overall picture from our L.P.G. customers. There are four L.P.G. dealers in our territory and competition is very keen.

Special Meters

In the early part of our entering this phase of service, we found an urgent need for a meter that would register on an equivalent BTU basis per cubic foot. After discussing this matter with two of the meter manufacturers, we were finally able to interest the American Meter Company in producing a meter with different type indexes. We experimented for several months with different indexes until we were able to get the proper registration. Now all of our installations are complete with a meter. We try to install a tank large enough to give the customer a six-week's supply of gas, all tanks are company-owned, and by the method of filling once a month, reading meters at the same time and rendering service to the far out-lying consumers, we find that this method is very satisfactory except in occasional cases. When a customer on our mains receives a gas bill each month based on a cubic foot consumption, he becomes used to this method of billing. If this customer moves beyond the mains, the same installation, the same service and the same method of billing follows him in his new location. By this means we retain very satisfied customers. The cubic foot method of measuring, dates from way back in the gas industry and is known to practically all customers. Other methods such as Therms, Gallons, Happy Cooking Hours and others, in my opinion, are more or less confusing to the public. Primarily, today my talk to you is from a Gas Utilities operation which is supplying service to customers beyond the mains. I think this is very readily discernible.

The Dealer Method

Now let us consider the picture from the side of the cooperative dealers. Where you have a set-up of this type, it works fine. The dealer sells beyond the mains and supplies this need. He knows he has the cooperation and moral backing of the Gas Utility. The Gas Utility is always ready to lend a helping hand. The dealer has the storage and all necessary facilities for furnishing the Utility the L.P.G. needed for peak loads. If he is located close enough, a pipe line is all that is necessary into the plant. The L.P.G. is sold to the Utility at a price whereby the dealer makes a slight profit and cheaper than the Utility can install all the necessary equipment and retire it over a period of years. If he is not located close by, the L.P.G. is trucked in and pumped in his tank there. The L.P.G. dealer takes care of the load beyond the mains and when the mains are extended he moves his tanks and cylinders into a new location. A set-up similar to this is at St. Augustine, Florida, between the St. Augustine Gas Company and the Suburban Gas Company. Here there is perfect harmony and close cooperation between the two companies and no friction. In our State there are similar set-ups but I mention this one in particular.

Safety First

There is one point, however, I certainly wish to stress. Whether the Utility or the L.P.G. dealer supplies this service, please, at all times, stress and work for the safety of the gas industry. The National Board of Fire Underwriters have made a careful study of this product and have promulgated and laid down safety rules and regulations. Some of the rules may seem expensive and useless, but there is a reason for these rules. The best engineering on each job is not too expensive. A satisfied customer is a big asset and promotes this business. One accident and it takes the whole gas industry a long time to live it down. It hurts all phases. And where there is a bad accident you will always find that there was some recommended practice that was not carried out.

Paper presented at meeting of Mid-Southeastern Gas Association, Raleigh, N. C., November 21-22, 1946

Joseph Bowes, President I.N.G.A. of A.

Joseph Bowes, President, Oklahoma Natural Gas Co., Tulsa, Okla., was elected President of the Independent Natural Gas Association of America at the annual meeting of the association held Nov. 22 at Fort Worth, Texas.

The other officers, all of whom were re-elected, are: Paul Kayser, El Paso, Tex., president of El Paso Natural Gas Company, first vice president; J. H. Dunn, Amarillo, Tex., president of Shamrock Oil & Gas Company, second vice president, and F. W. Peters, Tulsa, Okla., treasurer of Oklahoma Natural Gas Company, treasurer. All the directors were re-elected, except Elmer Schmidt, whose place was filled by the election of Gardner Symonds, President, Tennesse Gas and Transmission Co., Houston, Texas. The board also voted to increase the number of directors and then elected C. P. Rather, President of Southern Natural Gas Company, Birmingham, Ala., to be a member of the Board.

SUPERIOR GAS METERS

For Sound Values and Continuous Operating Economy

Meters for Domestic and Industrial Use. All Sizes 5B to 60C.
Wet Test and Demonstration Meters — Diaphragms —
Service Cleaners — Provers — Meter Repairs

Write for details and quotations

SUPERIOR METER COMPANY, INC.

167 41st Street Brooklyn, N. Y.

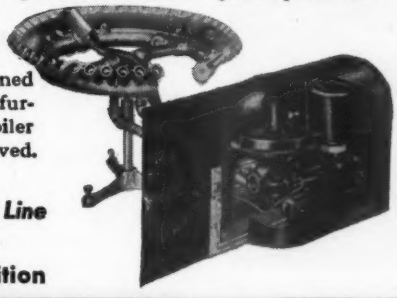
"The Gem of Them All"
COLUMBIA CONVERSION GAS BURNERS

More Popular Than Ever
With Home Owners and Dealers

DEALERS SAY—Columbia Nutipe Burner has a common sense design. Closely duplicates operation of appliance when solid fuel was used. Easy to install. Seldom requires service.

HOME OWNERS SAY—Gives quick heat transfer and earlier delivery of heat to rooms. Has tamper-proof controls and quiet operation.

MODEL P-ZE shown here is designed for use in warm air furnaces or round type boiler where grates are removed.



See the Complete Line at the Cleveland Exhibition

THE COLUMBIA BURNER CO.
729 Ewing Street • Toledo 7, Ohio

THE INLAND DOOR CLOSER

DESIGNED for CONVERSION BURNERS

OVER 50,000 IN USE

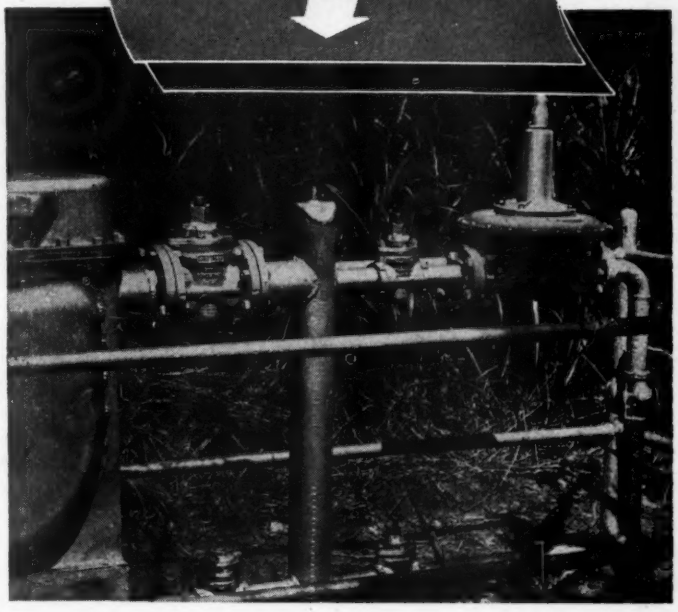
This device, designed for conversion burners, automatically closes the fire door of a boiler or furnace when blown open.

It consists of a cadmium plated door hinge pin, spring and wedge. The hinge pin replaces the regular fire door pins, the spring furnishes the motive power and the slotted wedge holds the fire door in the open position when required.

Furnished in 3/16 — ¼ — 5/16 — ⅜" Sizes

INLAND MANUFACTURING CO.
1120 N. Cicero Avenue, Chicago, Ill.

ACCURATE INDUSTRIAL GAS CONTROL



A Reynolds industrial installation for large cotton gin and compress.

● REYNOLDS has the variety of Regulators necessary to give accurate gas control under each and every requirement.

REYNOLDS offers greater Capacity—Increased Range—Quicker Response—all features of REYNOLDS Gas Regulators for Industrial Control. They assure smooth, constant outlet pressure and volume. Manufactured in single or double valve construction, REYNOLDS Industrial Regulators are proved by performance in factory tests and on installations throughout the world.

REYNOLDS Cooperation in solving Gas Control Problems is always available. Write.

RECOGNIZED GAS CONTROL SINCE 1892

Reynolds GAS REGULATOR CO.
ANDERSON INDIANA U.S.A.

Southern Gas Association Executive Committee Approves Plans for 36th Annual Convention

At a meeting of the Southern Gas Association Executive Committee in Biloxi, Mississippi, on December 5th, plans and program for the 36th Annual Convention were formulated and approved.

President Dean A. Strickland announced that the Convention would be held in Biloxi, Mississippi, on April 17th and 18th, 1947. The Buena Vista Hotel was designated as headquarters though housing accommodations will be available in six Gulf Coast hotels in and near Biloxi. Announcements concerning the convention will soon be mailed to all members and others who are interested.

M. H. North, General Convention Committee Chairman, presented the tentative Convention program as prepared by the Convention Committee.

The General Sessions will be held on the mornings of April 17th and 18th and will include addresses by speakers of national reputation, among which will be R. H. Hargrove, President of A.G.A., H. Carl Wolf, A.G.A. Managing Director, and Clayton Rand, philosopher and humorist. Other nationally known speakers are to be announced in the near future.

Sectional meetings will be held on the afternoons of April 17th and 18th and each will be under the direction of the chairman of the respective sectional committees.

It was also announced that the Southwest Personnel Conference will hold its Spring meeting in conjunction with the Southern Gas Association Convention. The personnel meeting will be held on Wednesday preceding the General Convention. This will be a round-table meeting and will include such subject matter as those attending wish to discuss. All S.G.A. members interested were invited to attend this conference.

Dean A. Strickland, President Southern Gas Assn.

Acting upon the recommendation of Carl H. Horne, Chairman of the Sales Committee, the Executive Committee also voted to underwrite and publish a simplified sales manual for gas appliances. The cost of this manual to member companies would be nominal and it will provide gas companies in the South and Southwest with a specialized and effective sales tool having particular value in a dealer-relations program.

M. H. North, Chairman Convention Committee

Robert R. Suttle, S.C.A. Managing Director, reported on the university short courses sponsored by the Association. The Executive Committee voted to continue to sponsor the Gas Appliance Service School at the University of Tulsa and the Short Course in Gas Technology at Texas College of Arts and Industries.

Mr. Strickland appointed Eli R. Cunningham to arrange a meeting of representatives of member companies interested in transmission problems and representatives of transmission companies, to consider the formation of a special transmission committee within the Association.

In closing, the Executive Committee adopted as the slogan for the 36th Annual Meeting, "Set Sail for Sales." It is believed that the gas industry in the South and Southwest will be "ship shape" by April of next year and can "shove off" on an effective sales program.

CRUSE-KEMPER COMPANY
AMBLER, PENNA.
GAS HOLDERS
Low Pressure High Pressure Inspection
Purifiers Tanks Flues
Over 40 Years of Sound
Steel Plate Construction

Large Volume Water Heating

A series of Articles for the Engineer, the Architect, the Salesman and the Contractor. They show how to select and install correct types of Water Heater Systems for specific purposes.

By

Malcolm B. Mackay

The Burkay Company

CHAPTER VII—Part 2

Recovery Water Heating Systems

(a) In contrast to automatic storage water heaters and those of the instantaneous type, the limitations of which restrict their applicability to large volume water heating as outlined in Part 1 of this chapter, the *Recovery* type of water heating system, employing a separate hot water storage tank of appropriate size, should be employed to supply Heavy Peak Demands for hot water at rates of flow which may greatly exceed the recovery capacity of the water heater.

The availability of this stored reserve of hot water makes it possible to draw hot water simultaneously from a multiple number of outlets for so long as the total volume used does not exceed the combined volume of the Stored Reserve plus the hot water which the heater will recover during a peak demand period. The Recovery type of water heating system, described in detail in section (c.) of Chapter I and in Chapters II and III, is accordingly best suited to supplying all types of Large Volume hot water requirements where the demand may reach peak proportions on one or more occasions during the day and the intervening time or *off peak* demand periods may be utilized for replacing — by the heater — the hot water drawn from the storage tank.

(b) Since—as stated in Part 3 of Chapter IV—the extent to which the stored Reserve of hot water in the tank of a recovery system may be depended upon to supply a portion of peak demand for hot water, which may at any time, *exceed* the recovery capacity of the heater, is inversely proportional to the length of the period during which the demand continues at the maximum, or peak rate and a definite but variable relationship exists between recovery and storage capacity under such conditions, it will be apparent that:

(1) The Volume of Hot Water which a given recovery water heating system can supply *per hour* will vary according to the *duration* of the peak demand period.

(2) A given recovery water heating system can furnish a *greater* volume of hot water during a *single hour* than it can supply in *each* of two or more *consecutive hours* during which the demand continues at *peak* level. For example—a system employing a heater having a recovery capacity of 200 gallons *per hour* of hot water at a temperature rise of 100° F., above the cold water inlet temperature—and a hot water storage tank having a capacity of 300 gallons could supply:

Two hundred gallons from the heater plus 210* gallons from the storage tank or a *total* of 410 gallons of hot water at the specified temperature for a *single hour* if the peak demand existed for *one hour only*, followed by an off-peak or stand-by period during which the heater could replenish the hot water drawn from the tank.

Two hundred gallons from the heater *plus* 105* gallons from the storage tank or a *total* of 305 gallons of hot water during *each* of 2, *consecutive* hours in which the hot water demand would continue at the *same* high, or peak, level.

Two hundred gallons from the heater *plus* 70* gallons from the storage tank or a *total* of 270 gallons of hot water during *each of three, consecutive* hours in which the hot water demand would continue at the *same* high, or peak, level.

Two hundred gallons from the heater *plus* 52* gallons from the storage tank or a *total* of 252 gallons of hot water during ***each*** of 4, *consecutive* hours in which the hot water demand would continue at the *same*, high level.

(3) To adequately meet a specific hot water demand, the ***ratio*** of recovery capacity of the heater to the volumetric capacity of the hot water storage tank *must* be determined not *only* on the basis of peak hour hot water demand, or the greatest volume of hot water which will be required during a given hour, and the maximum number of degrees, F., which the cold water supply will have to be raised in temperature—but *also* by the factor of ***duration*** of the peak demand period or the number of *consecutive hours* during which the hot water demand will exist at, or near peak level.

(c) To determine the recovery capacity of the heater and the capacity of the storage tank of a recovery water heating system which will be required to adequately supply a specific requirement for hot water, *four* simple steps, only, are necessary:

(1) Determine the ***water temperature rise*** or the ***maximum*** number of degrees, F., which the water will have to be *raised* in temperature as described under "Actual Water Heater Capacity" in Part 2 of Chapter IV.

(2) Determine the ***peak hour*** hot water *demand*:

—As described in Parts 1 and 2 of Chapter V if the hot water is required for *mass feeding.*

—As described in Part 2 of Chapter V if the hot water is required for *mass housing.*

—As described in Part 1 of Chapter VI if the hot water is required for *industrial processing.*

NOTE—Where the hot water will be required—or used—at a temper-

*See Paragraphs (1) to (6), inclusive, under "Hot Water Demand" in Part 3 of Chapter IV, preceding.

FIGURE NO. 10 A.
HOT WATER VOLUME CONVERSION TABLE

Where Hot Water will be required at a LOWER Temperature than that which will be maintained in the Hot Water Storage Tank of a Water Heating System, CONVERT the VOLUME OF Hot Water at the USING Temperature to the EQUIVALENT VOLUME at the AVAILABLE Hot Water Storage Temperature as follows:

WHERE - "A" EQUALS THE TEMPERATURE OF THE AVAILABLE HOT WATER.
"B" EQUALS THE TEMPERATURE OF THE COLD WATER SUPPLY.
"C" EQUALS THE USING TEMPERATURE OF MIXED WARM WATER

To determine the PERCENTAGE OF THE AVAILABLE Hot Water -- DIVIDE "C" Minus "B" by the SUM of "A" Minus "C", PLUS "C" Minus "B".

Or:

$$\frac{C - B}{(A - C) \text{ plus } (C - B)}$$

Equals the PERCENTAGE of Hot Water (A) which will be required.

ature considerably *lower* than that which will be maintained in the hot water storage tank of a recovery water heating system, a given number of gallons at the maintained—or *"available"* temperature will provide an *increased* volume of hot water at the *"using"* temperature as some cold water will be required to temper, or lower the temperature of the hot water from the water heating system. Where this condition exists, it is advisable to convert the required volume of hot water at the *"using"* temperature to the corrected volume at the *"available"* temperature by means of the formula shown in Figure No. 10A in Part 1 of Chapter VI but which is repeated here for convenience.

(3) Determine the *duration* of the *peak demand period* or whether the hot water demand will exist for a *single* hour, only, or continue at the same high level for *two*, or more, *consecutive* hours.

(4) After determining the water temperature rise, peak hour hot water demand and duration of the peak demand period as directed above, the required recovery capacity of the water heater and the capacity of the hot water storage tank may be read directly from the Sizing Table or Chart, to be shown in Figure No. 13. This sizing table eliminates the necessity for computing the heater recovery and storage tank capacities which will be required to supply a specific hot water requirement and will appear in the following Chapter.

(d) Correct capacitation is, however, but one of two factors which determine whether a Recovery System will function with complete satisfaction. The second factor is correct system lay-out and installation. Many recovery systems are so laid out or installed that proper functioning of the water heater and/or the hot water storage tank is greatly hampered if not defeated. Let us not lose sight of the fact that a correctly laid out and properly installed system employing mediocre equipment—and even a competitive fuel—can give more satisfactory service and be the source of greater owner satisfaction than can an under-capacitated, improperly laid-out or incorrectly installed, Gas-Fired system employing the best quality of equipment units. The attractive features of the large volume water heating load with its all year round high load factor and far from insignificant revenue should, alone, be of sufficient importance to any Gas Utility as to provide justification for giving increased attention to the adequacy and correctness of Water Heating Systems already in service or to be installed on its lines. The subject of correct versus incorrect lay-out and installation practice and the adverse effect of incorrect practice upon satisfactory performance of recovery as well as other types of water heating systems will be covered in a later Chapter.

Two Temperature Water Heating Systems

(a) Several means are available for supplying hot water at *two different temperatures* where required at *normal* temperature for general usage and also at an *excessively* high temperature to supply a specific demand such as furnishing hot water at sterilizing temperature for the final rinse operation in commercial, spray type dishwashers or for industrial processing:

(1) Two Separate Water Heating Systems may be employed—one having adequate capacity to supply the hot water demand at *normal* temperature and the second having adequate capacity to supply the demand at *high* temperature. If the demand for hot water at *high* temperature is continuous or *exceeds* the demand for normal temperature water, or may be required at rates of flow — exceeding in gallons per minute — the capacity of a booster water heater, *two* separate systems, should be employed. If a separate water heating system of the recovery type is employed to supply the *high* temperature water, consideration should be given to the fact that the deposition of lime or other scale in the hot water storage tank will be greatly accelerated at *high* temperatures if the water is only moderately "hard" or is not treated.

(2) A recovery type water heating system may be employed in which the stored reserve of hot water is maintained at the *highest*, required temperature for delivery to the dishwasher or other specific requirement and a mixing valve, preferably of the thermostatic type, employed to reduce or temper the *high* temperature water from the storage tank to the lower temperature required for general usage. Here also, consideration must be given not only to the fact that the liming or scaling problem, particularly with respect to the storage tank, will be greatly aggravated if the water is only moderately "hard" and is untreated, but also to the fact that operating and maintenance costs will be increased as a result of increased heat loss due to radiation and the inevitable wastage of hot water which would occur if a mixing valve were not employed and high temperature water drawn at sink and other outlets.

(3) A Recovery Type water heating system in which the stored reserve of hot water is maintained at normal temperature (120° to 140°) for general usage and a Booster Heater to raise the temperature of the water from the recovery system to higher temperature, may also be employed. In this instance the capacity of the recovery system must be adequate to supply *not only* the hot water required at normal temperature *but also* the hot water which the booster heater will require when functioning to raise the normal temperature hot water to higher, steri-

(Continued on page 50)

Our Employee Rating, Training and Executive Development Programs

By
Harry H. Judson
Staff Assistant, Personnel Department
Consolidated Edison Company of
New York, Inc.

MANAGEMENT has been defined as "getting results through people." The subject of this paper deals with some of the "working tools" that may be used to assist management in getting better results.

Employee Ratings

To get results from people management must first know the people; the outstanding, up and coming fellows, as well as the misfits, the weak sisters, and unsatisfactory. Organized labor groups on the other hand, naturally, prefer uniform treatment of all employees, but in a democracy such as ours, management must seek out the best candidates from their personnel groups to aid in their development and to select the most promising for ultimate replacement of executives and supervisors, who now constitute management.

To accomplish this, many of us have used various methods or tools. The problem of rating an employee has always proved difficult and it is probable that no rating plan yet devised is considered completely satisfactory. There are some faults and disadvantages in all of them. In many instances we expect too much too soon from our rating plans. Much time and careful preparation are necessary to secure even partial success. Experience has proved that it is much more desirable to develop the rating plan gradually and to keep the ultimate objective clearly in mind. It may be helpful in visualizing this problem to consider two separate steps: one for the guidance of management, as in the seeking out of the outstanding employees for promotion; and the other for the guidance of the individual. This second step is very desirable but extremely difficult to administer. It requires that a standard be provided for every job title by which to measure the individual against the "yard stick." He must then be told of his shortcomings and how they may be corrected. Provision must be made for a dissatisfied individual to appeal a questionable decision. A record of outstanding performance must be followed by a suitable reward. It should be prompt and practically automatic.

In considering the adoption of a rating plan, it seems desirable to establish the first step and to have as an objective the guidance of management only. A plan with this objective is far simpler and easier to install. It also allows time for the supervisors to get acquainted with the plan and to accumulate some actual experience in rating. The second step, the guidance of the individual, should not be taken until adequate preparation has been made to minimize the hazards that will surely be encountered.

It is also possible to obtain many of the advantages of the second step while actually operating under the first plan without formally adopting the second. This result can be accomplished by using the management guidance information in the normal way with no reference whatever to the rating plan itself.

During the past few years many articles have been written regarding employee rating programs specifically stressing their weak points and emphasizing their undesirable features, such items as unbalanced rating scales, halo effect etc., having been thoroughly publicized.

There are many different causes for failures of rating plans, some of which may be traced to a lack of clear cut objectives, or to complications which develop through a relationship with other functions, such as a promotion plan or the use of ratings as a factor in reduction in force.

It is difficult to disagree with these statements since in most instances the claims are well founded. On the other hand, there are many advantages and desirable uses to which employee ratings may be applied. In our experience, the advantages outweight the disadvantages. We have found that by giving strong emphasis to the positive values of the rating plan and minimizing the negative values, the interest of management and the employee is substantially increased. The most desirable procedure is to first establish simple clear-cut policies. This must be followed with a thorough selling of the plan, and an educational campaign.

Some of the obstacles to be overcome in any rating plan are:

1—Should the employee be told of his rating? Our present reasoning on this question is as follows: The making of the rating is not an exact science or mathematical formula; it depends on many variable factors in human nature and the possibility of error and injustice cannot be excluded. If the ratings are given to the employees, comparisons naturally will be made. These will give rise to jealousy, dissatisfaction, resentment and probably in many cases to strong feelings of injustice and resultant discouragement with low morale. Therefore, we have decided to confine the use of ratings to purposes of management's guidance, rather than to use them for their effect on the employees, which may turn out contrary to that intended.

2—Shall the "dependability" element include sick absence or unexcused absence? We find many departments anxious to adopt this policy. Their reasoning is based on the fact that when an employee fails to appear for work, the action in some instances may be deliberate, resulting in lowered efficiency of an entire group of employees. We have succeeded in excluding this element from our rating performance while on the job. The absence record is considered separately and is a part of the employee's overall personnel record.

3—The use of complicated rating forms with an excessive number of similar elements resulting in increased cost and difficult application.

4—Requests to exclude certain organizational groups or to rate employees in the lower level only. We feel that the rating plan, if used at all, should be uniformly applied in all departmental units and should be carried as high in the organization as is needed to give management an accurate appraisal of all employees and supervisors.

Analysis of Plan

Three years ago the Consolidated Edison Company adopted the Federal Civil Service Rating Plan for non-supervisory employees on the weekly payroll. Prior to that time, various rating plans were tried out in different departments and some were considered fairly satisfactory.

The Federal Civil Service form was readily accepted by our employees on the basis that if it was good enough for the government, it would be good enough for us. We have limited the choice of elements, however, and find that six are usually sufficient. The method of selection is as follows:

I—How well work is done—Ability
(Use 1 to 3 Elements)
- 1—Maintenance of equipment, tools, instruments
- 2—Mechanical skill
- 3—Skill in the application of techniques and procedures
- 4—Presentability of work-arrangement and appearance
- 5—Attention to broad phases of assignments
- 6—Attention to pertinent detail
- 7—Accuracy of operations
- 8—Accuracy of final results
- 9—Accuracy of judgments or decisions
- 10—Effectiveness in presenting ideas or facts
- 14—Ability to organize his work

II—How much work is done—Effort
(Use only 1 Element)
- 11—Industry
- 12—Rate of progress on or completion of assignments
- 13—Amount of acceptable work produced from records

III—Manner of doing work—Attitude
(Use 1 or 2 Elements)
- 15—Effectiveness in meeting and dealing with others
- 16—Cooperativeness
- 17—Initiative
- 18—Resourcefulness
- 19—Dependability

Three changes were made in the form and are now in effect.

a—We utilized our IBM equipment to print the employee's name, number, title, etc. at the top of each form. Forms are printed in duplicate with carbon inserted, which minimizes the work of the departmental rating supervisor.

b—We omitted Element No 20—Physical fitness for the work. Physical limitations are determined by the Medical Department. Therefore, they are not considered a necessary element in rating. The department decides the fitness of the individual in relation to his classification, and if he is not fitted, he is considered as "limited."

c—We added an additional element which requires the rating supervisor to estimate the employee's rating in the next higher position. This is used only when the original rating in "excellent" or "very good."

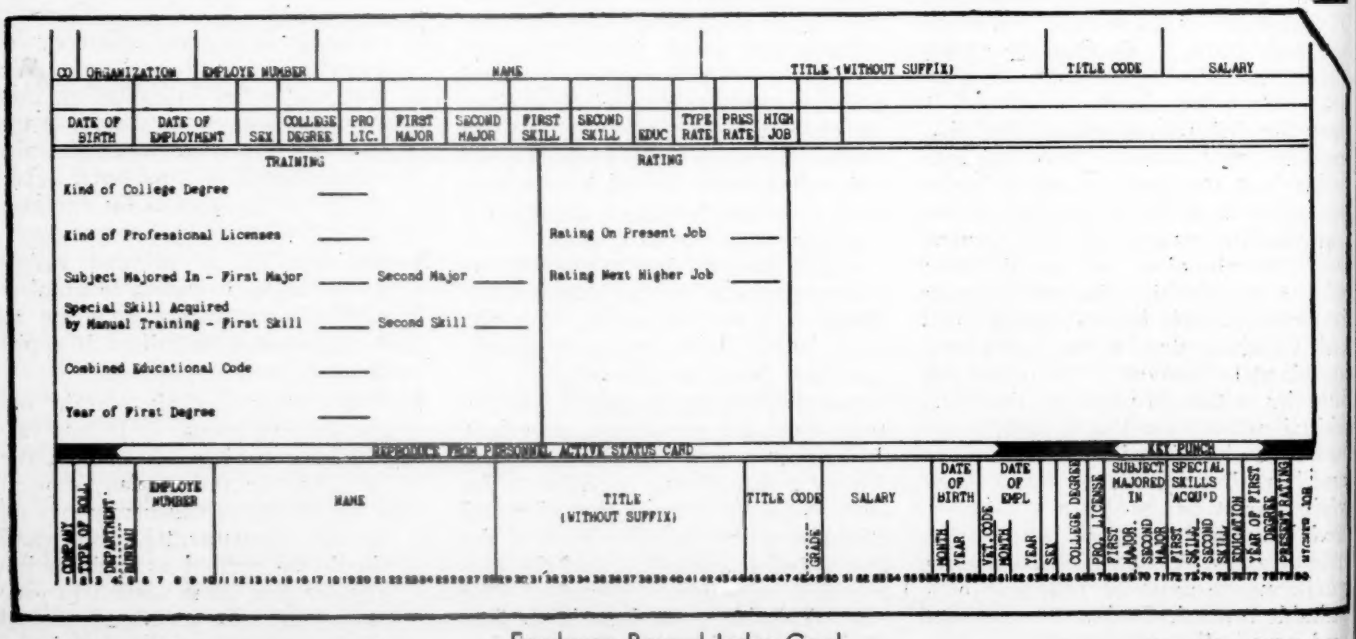
This device accomplishes several purposes—first, it requires the rater to do some serious thinking about the capacity and ability of the individual for promotion, and it also serves as a check on the regular rating. In some instances, there is no higher position, in which case a promotional move through a transfer may be planned.

Last year we extended the rating plan to include supervisory employees. We have set the upper limit on this group at the bureau head level. A separate form is prepared for this purpose. The elements used are planned to fit in with the Wage and Hour Classification for Executive, Administrative and Professional groups. This group is rated each January while the non-supervisory group is rated in September.

When all the employee ratings are completed, the adjective ratings are coded and posted on IBM cards. These codes are simple—(1) for excellent, (2) for very good, etc. The last two columns of this card are used for this purpose. Column No. 79 is used for the present job, and column No. 80 for the next higher job. The other part of the Hollerith card contains the usual personnel information regarding the employee, also a complete history of his educational record. College degrees, state licenses, etc. are coded. Special skills, such as Welders, Pipe Fitters, etc., are also coded.

This information permits quick reference and analysis to effect employee transfers, promotions, etc. We are continually finding new uses for this information, the most common of which is the selection of candidates for our Executive Development Program.

Other suggestions regarding the failures of rating plans may be found in a report entitled Dartnell No. 525—Employee Rating Plans, Dartnell Company, Chicago.



Employee Record Index Card

Training

The second "working tool" that we can use to aid management to get better results through people is training.

In the last year we have learned how to use this tool more effectively and avoid some of the mistakes of earlier days. Here are some principles of training which we must not let ourselves forget. Essentially the plan is a *training device.*

1—Training as a personnel activity is a staff function. Many companies set up their Personnel Department program as a line function—in some extreme cases it was necessary to complete certain required courses to secure an advance in salary.

2—Training needs must be carefully considered—and the program designed adequately to meet these needs; then the program must be sold, from the top to the bottom of the organization. We have all seen examples of training courses being established to suit the whims of a few individuals rather than to meet the real recognized needs of the Company.

3—The personnel in charge of the training program should be limited to a few competent and carefully selected individuals. It is not sufficient to have good theoretical background; a good knowledge of the company's operations is also essential. The details needed will then be taken care of by the line personnel who actually carry on the work.

4—The training program must be kept current. Changes must be made promptly when needed. When the need for other changes in the organization is "discovered" through the training program, they too should receive prompt attention.

CONSOLIDATED EDISON SYSTEM

EMPLOYEE RATING
(Monthly and Semi-Monthly Payrolls)

Org | Name of Employee | Title | Employee Number | Note "D"

Rated as (Title) | Based on performance during period from ____ to ____

(A) In blocks below mark employee: ✓ if adequate, − if weak, + if outstanding.
(B) Underline the elements which are especially important in the position.
(C) Rate only on elements selected as pertinent to the position.

NOTE "D": WAGE & HOUR CLASSIFICATION
Executive (1) Professional (5, 6)
Administrative (2, 3, 4) Non-exempt (7)

Rating Elements to be considered for all classifications
(Use at least four elements)

(1) General skills and knowledge required in job ____ (1)
(2) Ability to organize the work ____ (2)
(3) Accuracy of judgment or decisions ____ (3)
(4) Rate of progress on or completion of assignments ____ (4)
(5) Ability to get along with others ____ (5)
(6) Initiative and resourcefulness ____ (6)
(7) Dependability ____ (7)

REMARKS

Additional Rating Elements to be considered for EXECUTIVE classification only
(8) Ability to handle personnel problems of group ____ (8)
(9) Effectiveness in directing, training, and developing subordinates ____ (9)

Additional Rating Elements to be considered for ADMINISTRATIVE classification only
(10) Effectiveness in presenting ideas or facts ____ (10)
(11) Ability in developing techniques and procedures covering policies and operations ____ (11)

Additional Rating Elements to be considered for PROFESSIONAL classification only
(12) Effectiveness in use of professional skills and knowledge ____ (12)
(13) Ability to do creative or original work ____ (13)

DETERMINATION OF ADJECTIVE RATING
Deviations must be explained in remarks column

	Adjective rating
Plus marks on all underlined elements, and no minus marks	Excellent
Plus marks on at least half of the underlined elements, and no minus marks	Very good
Check marks or better on a majority of underlined elements, and any minus marks overcompensated by plus marks	Good
Check marks or better on a majority of underlined elements, and minus marks not overcompensated by plus marks	Fair
Minus marks on at least half of the underlined elements	Unsatisfactory

Adjective rating
Rating Supervisor ____
Reviewing Supervisor ____

Rating Element to be considered separately for all classifications

(14) Estimated performance in next higher position

E	VG	G	F	U

Rated by ____ (Signature of rating supervisor) ____ (Title) ____ (Date)

Reviewed by ____ (Signature of reviewing supervisor) Rating approved by employee rating committee ____ (Date)

Adapted from U. S. Civil Service Commission Rating Form

Original copy to be forwarded to Personnel Department, carbon copy to be retained in Departmental File.

This Form (8½x11) Used for 2500 Supervisory Employees

Effect of the Program

Training program of the Consolidated Edison Company over a period of years have varied from provision for minimum needs to a very elaborate program. Our present low labor turnover rates and decreasing numbers of personnel, and availability of good courses in local schools and colleges, limit the present need for training to a relatively few subjects. The most recent trends now are toward more orientation training for the increasing numbers of new employees and the future needs for supervisory training in employee relations. An important function of our Training Bureau is the constantly available service to all employees in their training problems. Many of our employees carry on evening work in various colleges, prepare for Professional Engineer's licenses, etc.

The Training Bureau is in direct charge of the administration of the Employee Rating plan. It provides counsel and advice to departments on all rating and training problems. It provides text material, visual aids, sound slide equipment and all necessary facilities to aid the training work carried on in the various departments.

Employees consult the training office regularly for advice on their training problems. In short, the Training Bureau provides a staff training service to departments who need training which is not available in outside schools.

Members of the Executive Development Program on new assignments frequently use the text material of the Training Bureau, such as the texts on Gas Manufacturing and Distribution, and the Electrical Distribution System. These are in almost constant demand.

Records

One of the most valuable activities of the Training Bureau is a complete and up-to-date record of the educational status of every employee as well as special skills. With the aid of IBM equipment, special studies may be made promptly to provide answers to such problems as:

1—When should we start hiring young engineers? How many, what kind?

2—How do our pay rates for mechanical engineers or attorneys, five, ten, fifteen and twenty years out of college, compare with other companies?

3—Where can we find five cabinetmakers from among our 28,000 employees?

Obviously the Training Bureau of the Personnel Department of the Consolidated Edison Company is purely a staff organization. We provide aid, assistance and advice to both management and employees. We are constantly searching for new train-

Analysis of Plan

Three years ago the Consolidated Edison Company adopted the Federal Civil Service Rating Plan for non-supervisory employees on the weekly payroll. Prior to that time, various rating plans were tried out in different departments and some were considered fairly satisfactory.

The Federal Civil Service form was readily accepted by our employees on the basis that if it was good enough for the government, it would be good enough for us. We have limited the choice of elements, however, and find that six are usually sufficient. The method of selection is as follows:

I—How well work is done—Ability
(Use 1 to 3 Elements)
1—Maintenance of equipment, tools, instruments
2—Mechanical skill
3—Skill in the application of techniques and procedures
4—Presentability of work-arrangement and appearance
5—Attention to broad phases of assignments
6—Attention to pertinent detail
7—Accuracy of operations
8—Accuracy of final results
9—Accuracy of judgments or decisions
10—Effectiveness in presenting ideas or facts
14—Ability to organize his work

II—How much work is done—Effort
(Use only 1 Element)
11—Industry
12—Rate of progress on or completion of assignments
13—Amount of acceptable work produced from records

III—Manner of doing work—Attitude
(Use 1 or 2 Elements)
15—Effectiveness in meeting and dealing with others
16—Cooperativeness
17—Initiative
18—Resourcefulness
19—Dependability

Three changes were made in the form and are now in effect.

a—We utilized our IBM equipment to print the employee's name, number, title, etc. at the top of each form. Forms are printed in duplicate with carbon inserted, which minimizes the work of the departmental rating supervisor.

b—We omitted Element No 20—Physical fitness for the work. Physical limitations are determined by the Medical Department. Therefore, they are not considered a necessary element in rating. The department decides the fitness of the individual in relation to his classification, and if he is not fitted, he is considered as "limited."

c—We added an additional element which requires the rating supervisor to estimate the employee's rating in the next higher position. This is used only when the original rating in "excellent" or "very good."

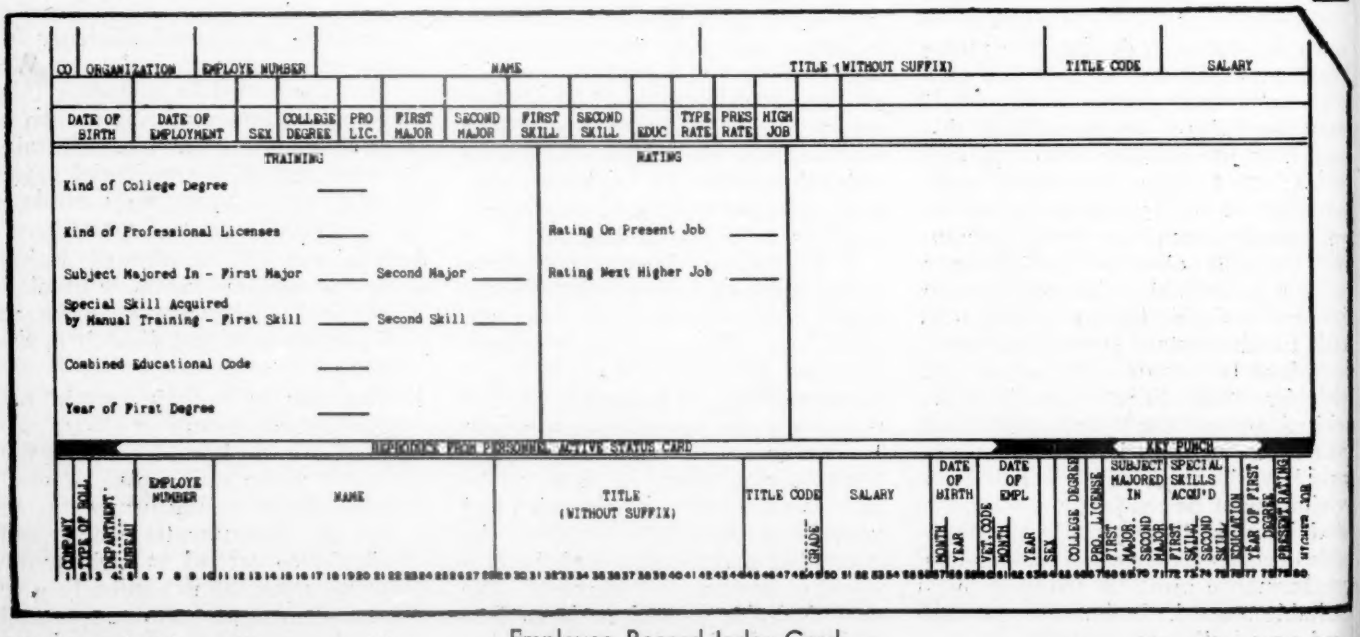
This device accomplishes several purposes—first, it requires the rater to do some serious thinking about the capacity and ability of the individual for promotion, and it also serves as a check on the regular rating. In some instances, there is no higher position, in which case a promotional move through a transfer may be planned.

Last year we extended the rating plan to include supervisory employees. We have set the upper limit on this group at the bureau head level. A separate form is prepared for this purpose. The elements used are planned to fit in with the Wage and Hour Classification for Executive, Administrative and Professional groups. This group is rated each January while the non-supervisory group is rated in September.

When all the employee ratings are completed, the adjective ratings are coded and posted on IBM cards. These codes are simple—(1) for excellent, (2) for very good, etc. The last two columns of this card are used for this purpose. Column No. 79 is used for the present job, and column No. 80 for the next higher job. The other part of the Hollerith card contains the usual personnel information regarding the employee, also a complete history of his educational record. College degrees, state licenses, etc. are coded. Special skills, such as Welders, Pipe Fitters, etc., are also coded.

This information permits quick reference and analysis to effect employee transfers, promotions, etc. We are continually finding new uses for this information, the most common of which is the selection of candidates for our Executive Development Program.

Other suggestions regarding the failures of rating plans may be found in a report entitled Dartnell No. 525—Employee Rating Plans, Dartnell Company, Chicago.



Employee Record Index Card

Training

The second "working tool" that we can use to aid management to get better results through people is training.

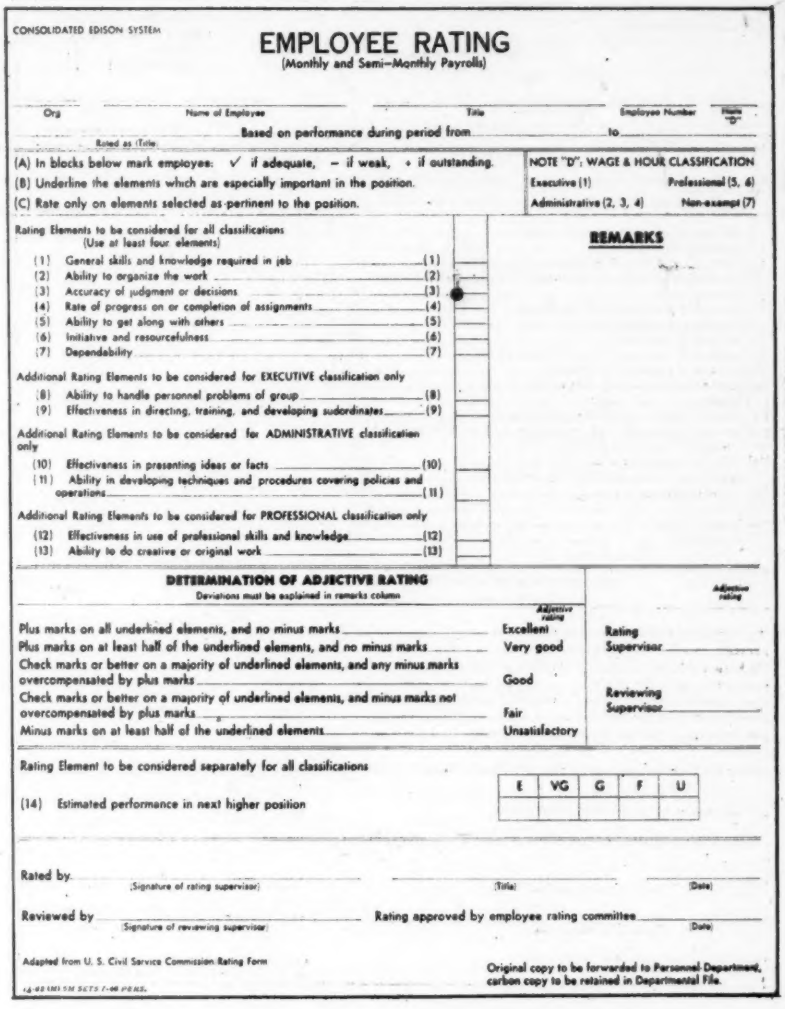
In the last year we have learned how to use this tool more effectively and avoid some of the mistakes of earlier days. Here are some principles of training which we must not let ourselves forget. Essentially the plan is a *training device.*

1—Training as a personnel activity is a staff function. Many companies set up their Personnel Department program as a line function—in some extreme cases it was necessary to complete certain required courses to secure an advance in salary.

2—Training needs must be carefully considered—and the program designed adequately to meet these needs; then the program must be sold, from the top to the bottom of the organization. We have all seen examples of training courses being established to suit the whims of a few individuals rather than to meet the real recognized needs of the Company.

3—The personnel in charge of the training program should be limited to a few competent and carefully selected individuals. It is not sufficient to have good theoretical background; a good knowledge of the company's operations is also essential. The details needed will then be taken care of by the line personnel who actually carry on the work.

4—The training program must be kept current. Changes must be made promptly when needed. When the need for other changes in the organization is "discovered" through the training program, they too should receive prompt attention.



CONSOLIDATED EDISON SYSTEM

EMPLOYEE RATING
(Monthly and Semi-Monthly Payrolls)

Org ____ Name of Employee ____ Title ____ Employee Number ____ Form "D"

Rated as (Title) ____ Based on performance during period from ____ to ____

(A) In blocks below mark employee: ✓ if adequate, − if weak, + if outstanding.
(B) Underline the elements which are especially important in the position.
(C) Rate only on elements selected as pertinent to the position.

NOTE "D": WAGE & HOUR CLASSIFICATION
Executive (1) Professional (5, 6)
Administrative (2, 3, 4) Non-exempt (7)

Rating Elements to be considered for all classifications
(Use at least four elements)

(1) General skills and knowledge required in job ____ (1)
(2) Ability to organize the work ____ (2)
(3) Accuracy of judgment or decisions ____ (3)
(4) Rate of progress on or completion of assignments ____ (4)
(5) Ability to get along with others ____ (5)
(6) Initiative and resourcefulness ____ (6)
(7) Dependability ____ (7)

Additional Rating Elements to be considered for EXECUTIVE classification only
(8) Ability to handle personnel problems of group ____ (8)
(9) Effectiveness in directing, training, and developing subordinates ____ (9)

Additional Rating Elements to be considered for ADMINISTRATIVE classification only
(10) Effectiveness in presenting ideas or facts ____ (10)
(11) Ability in developing techniques and procedures covering policies and operations ____ (11)

Additional Rating Elements to be considered for PROFESSIONAL classification only
(12) Effectiveness in use of professional skills and knowledge ____ (12)
(13) Ability to do creative or original work ____ (13)

REMARKS

DETERMINATION OF ADJECTIVE RATING
Deviations must be explained in remarks column

	Adjective rating
Plus marks on all underlined elements, and no minus marks	Excellent
Plus marks on at least half of the underlined elements, and no minus marks	Very good
Check marks or better on a majority of underlined elements, and any minus marks overcompensated by plus marks	Good
Check marks or better on a majority of underlined elements, and minus marks not overcompensated by plus marks	Fair
Minus marks on at least half of the underlined elements	Unsatisfactory

Adjective rating
Rating Supervisor ____
Reviewing Supervisor ____

Rating Element to be considered separately for all classifications

(14) Estimated performance in next higher position

E	VG	G	F	U

Rated by ____ (Signature of rating supervisor) ____ (Title) ____ (Date)

Reviewed by ____ (Signature of reviewing supervisor) Rating approved by employee rating committee ____ (Date)

Adapted from U. S. Civil Service Commission Rating Form

Original copy to be forwarded to Personnel Department, carbon copy to be retained in Departmental File.

This Form (8½x11) Used for 2500 Supervisory Employees

Effect of the Program

Training program of the Consolidated Edison Company over a period of years have varied from provision for minimum needs to a very elaborate program. Our present low labor turnover rates and decreasing numbers of personnel, and availability of good courses in local schools and colleges, limit the present need for training to a relatively few subjects. The most recent trends now are toward more orientation training for the increasing numbers of new employees and the future needs for supervisory training in employee relations. An important function of our Training Bureau is the constantly available service to all employees in their training problems. Many of our employees carry on evening work in various colleges, prepare for Professional Engineer's licenses, etc.

The Training Bureau is in direct charge of the administration of the Employee Rating plan. It provides counsel and advice to departments on all rating and training problems. It provides text material, visual aids, sound slide equipment and all necessary facilities to aid the training work carried on in the various departments.

Employees consult the training office regularly for advice on their training problems. In short, the Training Bureau provides a staff training service to departments who need training which is not available in outside schools.

Members of the Executive Development Program on new assignments frequently use the text material of the Training Bureau, such as the texts on Gas Manufacturing and Distribution, and the Electrical Distribution System. These are in almost constant demand.

Records

One of the most valuable activities of the Training Bureau is a complete and up-to-date record of the educational status of every employee as well as special skills. With the aid of IBM equipment, special studies may be made promptly to provide answers to such problems as:

1—When should we start hiring young engineers? How many, what kind?

2—How do our pay rates for mechanical engineers or attorneys, five, ten, fifteen and twenty years out of college, compare with other companies?

3—Where can we find five cabinetmakers from among our 28,000 employees?

Obviously the Training Bureau of the Personnel Department of the Consolidated Edison Company is purely a staff organization. We provide aid, assistance and advice to both management and employees. We are constantly searching for new train-

CONSOLIDATED EDISON SYSTEM

EMPLOYEE RATING

IF OTHER THAN REGULAR RATING, CHECK BELOW:
SPECIAL ( )
TRIAL PERIOD ( )

Org | Name of Employee | Title | Employee Number

Rated as (Title) Based on performance during period from to

(A) In blocks below mark employee: ✓ if adequate, – if weak, + if outstanding.
(B) Underline the elements which are especially important in the position.
(C) Rate only on elements selected as pertinent to the position.

(1) Maintenance of equipment, tools, instruments	(1)	
(2) Mechanical skill	(2)	
(3) Skill in the application of techniques and procedures	(3)	
(4) Presentability of work (appropriateness of arrangement and appearance of work)	(4)	
(5) Attention to broad phases of assignments	(5)	
(6) Attention to pertinent detail	(6)	
(7) Accuracy of operations	(7)	
(8) Accuracy of final results	(8)	
(9) Accuracy of judgments or decisions	(9)	
(10) Effectiveness in presenting ideas or facts	(10)	
(11) Industry	(11)	
(12) Rate of progress on or completion of assignments	(12)	
(13) Amount of acceptable work produced (Is mark based on production records? Yes ☐ No ☐)	(13)	
(14) Ability to organize his work	(14)	
(15) Effectiveness in meeting and dealing with others	(15)	
(16) Cooperativeness	(16)	
(17) Initiative	(17)	
(18) Resourcefulness	(18)	
(19) Dependability	(19)	

REMARKS

DETERMINATION OF ADJECTIVE RATING
Deviations must be explained in remarks column

	Adjective rating
Plus marks on all underlined elements, and no minus marks	Excellent
Plus marks on at least half of the underlined elements, and no minus marks	Very good
Check marks or better on a majority of underlined elements, and any minus marks overcompensated by plus marks	Good
Check marks or better on a majority of underlined elements, and minus marks not overcompensated by plus marks	Fair
Minus marks on at least half of the underlined elements	Unsatisfactory

Adjective rating
Rating Supervisor
Reviewing Supervisor

Employee to be rated in this element only when Regular Rating is Excellent or Very Good

	E	VG	G	F	U
(20) Estimated performance in next higher position					

Rated by (Signature of rating supervisor) (Title) (Date)

Reviewed by (Signature of reviewing supervisor) Rating approved by employee rating committee (Date)

Adapted from U. S. Civil Service Commission Rating Form

Original copy to be forwarded to Personnel Department, carbon copy to be retained in Departmental File.

This Form (8½x11) Used for 25,000 Non-Supervisory Employees

ing needs and assisting the departments in developing their own programs. As a definite policy, however, we do no training for training's sake, but only when the need for training is real and recognized.

While we have made fairly satisfactory progress with our rating and training programs, we feel that our executive development program. Our third tool has proven the most valuable. It is also true that all three programs are related to each other.

Executive Development Program

During the next ten years, about 200 of the top level executive and supervisory positions in the Consolidated Edison Company will become vacant and replacements will be needed. The present incumbents in most instances will have reached the retirement age of 65 years. We now have on our Executive Development Program a group of about 90 prospective young candidates being groomed to qualify ultimately for these positions. During the next five years, we expect to select many more from the rank and file of our 28,000 employees.

While our business is not much different than that of most other large organizations, we do feel that the top level jobs in our company will be more complex and difficult in the future than they are today. Management's job now is far more complicated and carries far greater responsibilities than it did ten years ago. Likewise, management's job ten years hence will be increased in proportion and importance. Some of the present trends are increased taxes, higher wages, increased cost of coal and other materials, with relatively fixed rates for our products. Management's job is to meet these demands through increased output, improved load factor, the use of more efficient equipment and operating at maximum efficiency.

To accomplish this, management must do some intelligent planning, conduct research studies and maintain a very high degree of utilization of every essential employee. Our executives must have a thorough knowledge of our business and of all of its related functions.

All of our executives and supervisory employees must thoroughly appreciate the importance of securing and maintaining an equitable balance between the interests of the employees, the stockholders, and the consumers of our products.

To carry out this program effectively, executive ability and leadership of the highest order are essential.

The management of our Company thoroughly appreciates the importance of preparing young men, ahead of time, to be able to take over these responsibilities. Therefore, one of the most important duties of our executives, at the moment, is the selection, training and development of the men who will ultimately replace them.

We feel that our Executive Development Program, with the enthusiastic support of management and workers alike, will go far in accomplishing this result.

Earlier Experience

The plan was first used in 1933, when a few supervisory employees whose jobs had comparable functions were interchanged. The initial experiment proved so satisfactory, that in 1937 the plan was continued. Our experience in the early stages of the plan indicated that in the upper supervisory levels, job knowledge alone was less important than some of the other requirements, such as the ability to carry out effectively broad Company policies both within and without the organization. We have been able to interchange personnel in practically all top level positions except for a few which require specialized training and experience.

Rotation of Duties

The program provides for a simple rotation of administrative and executive personnel in equivalent job assignments of about one year's duration. Throughout this period, they are expected to assume definite responsibilities for and to take charge of the assigned function. In this manner, they acquire experience in activities with which they are not familiar.

Our Company comprises all the usual business functions, combined with the special requirements needed for the production and distribution of electricity, gas and steam, and the numerous State and Federal regulations to which we are subject as a utility. These specialized functions of our business must be closely integrated; for our efficient operation, therefore, the complexity of the per-

sonnel requirements for top-side supervision and executives definitely rules out the specialist. In fact, there are numerous positions even at the bureau head level that require a comprehensive knowledge of the functions and operating procedures of several other bureaus, and we are convinced that, other qualifications being equal, the best executives are the ones who have the broadest background of experience in the different fields of activity.

The program is sponsored and controlled by a committee composed of department heads and vice presidents who are keenly interested in all phases of this activity as well as in tne individuals themselves. The committee chairman (Assistant to Executive Vice President) carries on the routine activities between meetings.

Summary of Plan

We have had several years of experience in operating this program. Briefly, the plan may be described in four simple steps:

1—To review the requirements of key positions to determine accurately the scope of the specialized responsibilities and the nature of the separate functions involved.

2—To review the qualifications and experience of the nominees and schedule appropriate individual assignments to provide the required breadth of experience for higher key positions.

3—To plan replacements as far in advance as possible to make certain that properly qualified men will be available for all key positions when needed.

4—To provide improved methods for the selection and screening of individuals to insure that no eligible candidates are overlooked and that nominees are constantly appraised.

While we do not consider our plan perfect and we are constantly striving to improve its effectiveness, here are some of the things we consider are outstanding advantages:

1—Practically eliminates the possibility of mistakes of selection.

2—Insures consideration of all eligible candidates.

3—It provides a strong incentive, or a challenge, for the young nominee to "make good."

4—It develops the nominee's ability to administer company policies under varying conditions.

5—It broadens the individual's specialized knowledge of many of the Company's functions.

6—It brings about a clearer viewpoint of the other fellow's problems—hence better cooperation and closer integration.

7—It corrects any mistaken ideas that any individual is indispensable.

8—It permits appraisal of the nominee by a larger group of executives, thereby assuring promotions when merited.

9—It provides real experience in actually "carrying the ball," thereby developing executive ability by the best possible method.

These three programs have been uniformly accepted and developed by management generally rather than by an executive edict. Perhaps, this basic philosophy is a major factor in the excellent results being attained. The vice presidents and department heads have actively participated in the formulation and development of these important programs; therefore, they thoroughly appreciate their value and usefulness in *getting better results through people.*

Presented at Gas Company Managers Conference, New England Gas Assn., December 5, 1946.

Survey of Heating Systems Favors Gas Units

An analysis of fuels and heating systems planned by builders for use in 629,000 authorized new conventional houses under the Veterans Emergency Housing Program was recently released by the National Housing Agency. One of the most interesting features of the release is the table herewith, showing the different fuel choices listed geographically and indicating that convenience and cost were the two principal influencing factors.

For instance, in New England gas heating is demanded in only 15% of the houses planned, while in the West-North Central States of Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas gas constitutes the chosen fuel for 59% of the authorized construction. In the West, South Central, Mountain and Pacific Coast States the gas percentage is even higher.

Comparative data on the proposed use of heating equipment is also given, although it is not geographically divided. Of those who plan to install boilers, the highest percentage, 37%, are authorized to have oil burners.

Where *gravity* warm air furnaces constitute the heating equipment the top demand is shared by coal and gas with 46% each, but in the case of *forced* warm air furnaces, gas dominates with 52%, oil rates 28% and coal 20%.

The analysis was based on approved priority applications filed between January 15th and July 26th. About 93% of the applications were for single family units.

Fuel	*Total U. S.*	*New England*	*Middle Atlantic*	*East, North Central*	*West, North Central*
Coal	27%	30%	32%	51%	26%
Oil	21%	55%	22%	11%	15%
Gas	52%	15%	46%	38%	59%

Fuel	*South Atlantic*	*East, South Central*	*West, South Central*	*Mountain*	*Pacific*
Coal	30%	51%	1%	20%	5%
Oil	48%	17%	3%	19%	17%
Gas	22%	32%	96%	61%	78%

Alundum Abrasive. Norton Company, Worcester, Mass., issues a full color folder describing characteristics and uses of "32 Alundum" a new type of aluminum oxide abrasive claimed to reduce grinding time and cut deeper and faster than other products. Grinding wheels of many designs and sizes are offered.

THERE'S NOTHING TO THIS INSTALLATION JOB—JUST TAKE IT OUT OF THE BOX AND SET IT IN THE FURNACE

CHORE BOY

A. G. A. Certified

★ FACTORY ASSEMBLED AND TESTED
★ HIGHEST QUALITY CONTROLS FOR COMPETENT, FULL AUTOMATIC OPERATION
★ SINGLE FULL THROAT BURNER WITH INSTANT IGNITION PILOT IN DIRECT CONTACT
★ ASHPIT DOOR PLATE FURNISHED

COMBUSTION SPECIALISTS SINCE 1914

Standard Fuel Engineering Co.
667 Post Avenue S., Detroit 17, Mich.

GAS METERS

ARMY E NAVY

RADAR

Lambert Meter Co.
Plainfield, N. J.

Have you considered a
CHECK-UP
of
GAS PLANT PERFORMANCE

Investigations and Reports by Qualified Engineers

COAL CARBONIZING COMPANY
314 North Broadway
St. Louis 2, Mo.

CLEVELAND

"A" TYPE METERS
"B" TYPE METERS
DIAPHRAGMS

Cleveland Gas Meter Co.
ESTABLISHED 1875
2009 Rockwell Ave., Cleveland 14, O. Phone CHerry 2351

GPM
Inch-Pound Service

The mark of
unerring dependability
in purification

GAS PURIFYING MATERIALS CO., INC.
3-15 26th Ave.
Long Island City 2, New York

COMPLETE GAS PLANTS
INDUSTRIAL FURNACES

•

Automatic Water-Gas Controls
Hydraulically-Operated Valves
for Air, Gas, and Steam

•

The GAS MACHINERY CO.
CLEVELAND, OHIO

Integration of California Gas Systems Proposed By State Commission

By
Fred A. Herr

RECOMMENDATIONS that gas systems in California be operated on an integrated basis so that gas in any area of the State may be made available to other areas, and the establishment of a gas "pool" in which various utilities would be members, were advanced by Homer Ross, senior utilities engineer of the California Public Utilities Commission, in a report presented December 11 at a Los Angeles hearing on the sale of surplus gas.

The hearing, conducted by Commissioner Ira H. Rowell, was attended by representatives of major gas companies, distributing and consuming industries, and by Southern California city and county officials. The hearing represented the postwar resumption of an investigation launched in 1941 by the California Railroad Commission (as the body was then known), but which was held in abeyance during the war years.

Ross submitted the conclusion that the natural gas reserves of the entire state of California are adequate for only approximately two decades, if the present rate of domestic and industrial consumption continues, and the reserves of the Los Angeles Basin on that consumption basis will be exhausted by 1955.

Ross, who in collaboration with Roy A. Wehe, assistant director of the Commission's public utilities department, recently completed a statistical report based on a survey of the known gas reserves of California, estimated the total resources at 11,421,450,939,000 cubic feet at the beginning of 1946. Of this total, he declared, approximately one trillion cubic feet were located in the Los Angeles area.

Population growth and increased industrial demand raised consumption figures to approximately 5 per cent of the total for the State and 11 per cent for the Los Angeles area during 1945, Ross testified at the hearing, Supported later by Wehe, Ross emphasized that some gas will be available for a longer period than pure mathematics indicate as the task of obtaining it increases in difficulty with depletion of the supply.

The recommendation for integration of California gas systems and establishment of a gas "pool" was made in the summary of Ross' presentation. The pool, he suggested, would provide for the purchase and exchange of gas between members so that any lack of balance in gas availability might be most advantageously righted.

"Also," the report added, "it was felt that the oil companies and the gas companies should co-operate more closely in working out their supply and demand problems, in a manner similar to that proved so effective during the war period under government directives."

The Ross report contained the warning that if satisfactory *voluntary cooperation* between gas and oil companies cannot be attained " . . . it is felt that some form of governmental control should be instituted, and such could probably be most advantageously affected in California at State level."

Comparative figures of California production of natural gas in 1935 and 1945 were presented at the hearing as follows:

	In Billions of Cubic Feet			
	1935		*1945*	
	Amount	*%*	*Amount*	*%*
Gas company disposition	165.9	52.0	342.7	62.3
Oil company use	129.9	40.7	192.8	35.1
Other use	.2	.1	—	—
Waste	23.1	7.2	14.3	2.6
State Total Production	319.1	100.0	549.8	100.0
Index	100.0		172.3	

The above figures indicate, Ross explained, that in the 11-year period 1935 through 1946 the production of natural gas in California increased approximately 72%; that the gas companies' "take" increased from 52% of the total production in 1935 to 62.3% in 1945; that the oil company use decreased from 40.7% to 35.1%; and that both oil and gas companies can look with considerable pride upon the reduction in gas waste.

Estimates on sectional and all-state gas production were submitted as follows:

	Millions of Cubic Feet		
	No. Calif.	*So. Calif.*	*State*
Estimated gas reserves	5,306,763	6,114,688	11,421,451
Adjusted 1945 net Prod.	232,453	305,051	537,504
% Production to Reserve	4.38	4.99	4.71
Reciprocal in years	22.8	20.0	21.2

Thus, Ross pointed out, on the basis shown, the overall net production of the State's net gas reserve was 4.71%, equivalent to 21.2 years of supply if the reserves could be made available at an annual rate of exhaustion of 71%.

"No consideration of the natural gas situation in California should be undertaken without having clearly in mind the place that the production of dry gas has in the total picture," the report declared. "In 1935 and earlier years California relied almost wholly on gas produced in conjunction with oil. The amount of dry gas produced in 1935 was only 3.7% of the total gas production. However, with the coming into production of Rio Vista gas field in the latter part of 1937, which was developed into the largest known natural gas reserve in the State, as well as the large increase in total gas requirements, dry gas supplied approximately 34% of the State's gas requirements in 1945. If this dry gas production of 34% for 1945 be expressed in terms of the gas supplied to gas companies it becomes approximately 54%."

The following table was submitted at the hearing to review more concretely the disposition of dry gas use between the northern and southern sections of the State for the last seven years:

DISPOSITION OF DRY GAS IN PER CENT

	1939	1943	1945
Northern California	66	94	95
Southern California	34	6	5
Total	100	100	100

The Ross report also emphasized that, where the conservation of gas is the primary objective, the difference in obligation of the gas companies to firm and surplus customers must always be kept in mind. Because of the interrelation of surplus and firm sales, the report stated, anything that changes the former, either in reference to volume or price level, affects the latter.

"It is fundamental that the surplus or interruptible class of gas sales is always secondary to the firm obligations of the utilities and, accordingly, in any future planning this concept must at all times be remembered so that the gas disposed of at less than full cost does not become a burden upon the groups or classes that pay their full share of cost of service."

The commission was advised at the hearing that 53.8% of the total firm sales in the period covered by the Ross survey (1935-1945) in California was disposed of in the southern area of the state and 46.2% in the northern area; and that the average rate paid by firm customers in the southern area was approximately 33% higher than paid in the north. The converse situation pertained to surplus sales in that the greater volume was sold in the north at an average rate slightly over 4% higher than the rate in the south.

Cost of Gas Purchased

Referring to cost of gas to the utilities, Ross advised the commission that the public utility gas companies in California are in a position different from certain natural gas companies in other states which produce a substantial part of their own gas supply. He explained that all gas in California is acquired from producers in the oil and gas fields, which are usually oil companies, or from pipeline companies, generally delivered at city gateways.

Figures were submitted showing that the average cost of gas purchased from producers in the field during the years 1935-45 inclusive ranged from 7c to 8.5c per Mcf. In 1935 the average cost was 8c, in 1937 8.5c, and then the average dropped steadily to slightly less than 7c in 1940. From 1940 the average rose steadily to about 8.3c in 1945.

The high average cost in 1937 was attributed primarily to a fuel oil price effective on gas escalator clauses during that year which was materially higher than any other year over the period presented.

The average cost of purchases from pipe-line suppliers rose from 13.7c per Mcf in 1941 to about 15.3c in 1945. Gas purchased from that source for firm resale rose from about 16.8c to about 18c, and for surplus resales from about 9.3c to 10.8c.

It was explained that while no analyses of gateway-delivery cost of gas purchased in the field by utilities was made, it is believed that such gateway costs in general were somewhat lower than the charges made by pipeline suppliers for deliveries at city gateways.

Heating Value Constant

The Ross report disclosed that the trend of average heating value of all gas distributed in California by public utility gas companies was essentially constant from 1935 to 1938 at a value near 1150 Btu, dropping steadily to about 1075 Btu in 1942, and remaining fairly constant since. For companies operating primarily in the northern California area, average heating value dropped from about 1185 Btu in the 1935-37 period (when most of the supply came from Kettleman Hills oil field) to about 1060 Btu in 1942, when supplies from the Rio Vista field had reached their present magnitude.

For Southern California gas companies, average heating value rose from 110 Btu in 1935 to a plateau of 1135 Btu extending from 1938 through 1940, after which there was a rather sharp drop to about 1100 Btu in 1942, which level remained fairly constant through 1945.

The commission was advised that the return of the Stanpac line, extending from Kettleman Hills field to San Francisco, from oil-transporting to gas-transporting service during 1946 resulted in increased deliveries of oil-well gas in the northern part of the state, and this accordingly tended to increase the average heating value in that section.

Effect of Texas Gas

On the other hand, in the southern part of the state, changes in sources of supplies of gas which may be available soon, including natural gas from Texas and New Mexico via the new $70,000,000 pipeline being constructed jointly by Southern California Gas Co., Southern Counties Gas Co. and El Paso Natural Gas Co., will probably result in a lowering of the average heating value.

STAMANCO
PURIFIER BOXES
For EFFICIENT and ECONOMICAL OPERATION
Made in any style or capacity, STAMANCO Purifier Boxes have the most modern features to facilitate charging and dumping of the oxide. In addition, if you have special conditions which must be taken into consideration, our 95 years' experience will prove of utmost value in arriving at the proper solution to your problem. It will pay you to discuss your problems with one of our engineers. No obligation.
The STACEY MANUFACTURING Co.
CINCINNATI 16, OHIO
SINCE 1851
GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES
ENGINEERS • FABRICATORS • CONSTRUCTORS
An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

The effect of these changes in heating value, the report summarized, will be to bring both sections of California closer to the average for the state as a whole.

The commission received evidence to the effect that of California's 11.4 odd trillion cubic feet of gas in reserve, approximately 60% is oil-well gas and the remaining 40% is dry gas reserves; that geographically the former is principally tributary to Southern California and the latter to Central and Northern California areas; further, that while the 1945 production was 4.71 per cent of the reserves for the state as a whole, the production, in reference to reserves, varied greatly as between the different sections of the state, being highest (11.32%) in the Los Angeles Basin fields.

Future Load Estimates

Forecasts of load estimates and gas availability were presented to show the probable future relationship between the two, and were as follows: *(see table below)*

The commission was advised that the estimated 59.3% growth for the fifteen year period in the firm service, exclusive of surplus transfers, is viewed as conservative when based upon the past. However, it was testified, the rate of growth will probably lessen and there may be a major economic recession within the period. Interruptible loads, therefore, it was stated, must be assumed to be severely cut back in order to conserve gas for the firm's services.

The estimated deficiencies in gas availability during the last two periods would be substantially greater if the 278 million a day of out-of-state gas were not available, the testimony disclosed, which was submitted to show the great importance of obtaining this added supply.

	Load Requirements—Average Millions of Cubic Feet Daily		
	1950	*1955*	*1960*
Firm	687	825	933
Firm and Interruptible	920	1,008	1,108
Availability	1,025	878	908

Appliance Selling in 1947

John M. Bess, Executive Vice President of Appliance Division, Noma Electric Corp., New York, presented a paper at the 14th Annual Convention and Exhibit of the Institute of Cooking and Heating Appliance Manufacturers, held in Cincinnati, O., Dec. 2 to 4th, in which he made some pertinent comments on appliance selling by utilities and manufacturers.

"*APPLIANCE SELLING IN 1947* in general, and the selling of cooking equipment in particular," he stated, "should be programmed along lines which will give wholehearted recognition to these four basic requirements."

Requirement No. 1: Appliance Selling in 1947 should be *1947 in spirit and outlook.* It must be on the beam. This means, greater-than-ever consideration for such problems as convenience in use, styling to please the eye and ease of purchase. It also means that we must now cheerfully accept the end of the soft seller's market and welcome the return of competitive conditions in which the buyer determines how many of us shall live and how many shall die.

Requirement No. 2: Appliance Selling in 1947 should be *cooperative.* It is most important for all of us to realize that the big battles in selling during the next few years will be between industries more so than between individual companies within the industry. We had better organize to combat the selling efforts of the automobile manufacturers, the television set makers, and the host of others eyeing the consumer dollar with that "come to papa" look.

Requirement No. 3: Appliance Selling in 1947 should be *dramatic.* It should "sing out." It should be thorough in its staging. This means intensive training courses for salesmen and service men in which visual methods play a prominent role. It also means proper instruction of buyers in the use of equipment and an ever-ready willingness on the part of executives to learn from honest complaints so that the assembly line will respond, as quickly as possible, to the findings in the field.

Requirement No. 4: Appliance Selling in 1947 should be *profitable* selling. Let's continue to figure a profit into the price of what we make so that we may all continue to prosper. While it is inevitable that profit margins per unit will shrink, it would be shortsighted indeed if, through miscalculation or any other cause, we were to find ourselves in a price-cutting atmosphere which would smother all efforts towards a united front in the industry.

If identification with an industry of such long standing tends to impose too great a restraint upon change, I should like to make this further recommendation. Let's proceed with our promotional plans *as though we were a new industry,* and as though we were unfolding before the eyes of the world for the first time a new horizon of utility and enjoyment.

We can well emulate the example of the household refrigerator manufacturers who are adapting their 1947 models to the space and temperature needs of frozen foods. We would profit also by following their lead in other ways, particularly in encouraging replacements by establishing many reasons for making them. Must we wait for a stove to *fall apart* before the idea of getting a new stove occurs to the owner?

Right now, the household refrigerator industry is aiming at the replacement of refrigerators which are only a few years old. There are surely a much greater number of stoves which are much older and in greater need of replacement.

Of late, we have heard a good deal about frozen foods and of the *changes* they have been bringing into the kitchen. We need not go berserk in our estimates of how soon frozen foods will become a daily part of the family diet in order to recognize their influence upon the ranges of Tomorrow. For one thing, the big educational problem in connection with frozen foods is their preparation for the table, involving a new set of instructions in so far as cooking equipment is concerned.

I trust that the Cooking and Heating Industry will meet the selling challenge of the hour and in 1947 make its contribution to the era of prosperity for which a war-weary people, starved for so long for so many things, is waiting so impatiently.

A. G. A. Activities

A. G. A. at the National Power Show

A record breaking crowd taxed the facilities and man power assigned to the American Gas Association Combined Exhibit at the 17th National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, December 2 - 7, 1946.

The A.G.A. sponsored combined exhibit occupied more than 600 square feet with 44 feet of frontage along one of the four main aisles of the main floor.

Some thirty industrial gas-fired units or pieces of equipment produced by ten manufacturers were displayed in the combined exhibit. Eight pieces were operating to demonstrate the advantages and application of the particular products. The assortment was such that no matter what the specific heating needs of the visitor were, at least one of the units was designed for the type of job in which he was interested. Advanced equipment for heat treating, melting air heating, temperature control, steam generation, water heating and gas-air proportioning was shown.

Thousands stopped to peer into the heat treating muffle furnace which operated continuously at 2000°F. It was the consensus of opinion of the manufacturers that of all the expositions at which a combined exhibit had been held, this particular show had brought forth more worthwhile inquiries than ever before.

The large and ever expanding field of hot air applications for tempering, core baking, product drying and curing was illustrated by means of installation photographs of many applications.

Recognizing the trend towards developing process steam in individual boilers serving individual production lines or machines, a 3 h.p. gas-fired boiler was included in the exhibit. There was also a live exhibit of miscellaneous refractory lined burners for various heating, heat treating and high speed operations.

The all important phase of control was represented by an exhibit of flowmeters, regulators, and a live exhibit of protective and control apparatus. This attractive exhibit was a center of interest with the several gas flames mysteriously going on and off to illustrate the sensitivity and accuracy of the control equipment.

The cooperating firms manufacturing the equipment shown in the A.G.A. Combined Exhibit were: American Gas Furnace Co., Elizabeth, N. J.; Bryant Heater Co., Industrial Division, Cleveland, Ohio; Gas Appliance Specialities Co., Woodside, N. Y.; Gehnrich & Gehnrich, Inc., Woodside, N. Y.; Charles A. Hones, Inc., Baldwin, N. Y.; Mears-Kane-Ofeldt Inc., Philadelphia, Pa.; Mid-Continent Metal Products Co., Chicago, Ill.; The Partlow Corporation, Utica, N. Y.; Selas Corporation of America, Philadelphia, Pa.; and A. O. Smith Corp., Milwaukee, Wisc. Representatives from Consolidated-Edison Company of New York, and The Brooklyn Union Gas Company assisted at the exhibit.

A. G. A. at the National Restaurant Exposition

The Industrial and Commercial Gas Section, will sponsor a Commercial Gas Cooking Center at the National Restaurant Exposition, Hotel Stevens, Chicago, March 25, 26 and 27, 1947.

Among the exhibitors of commercial cooking and baking equipment, the A.G.A. Center will be the focal point for commercial gas men and appliance manufacturers who will be exhibiting the latest in gas cooking and other gas-fired restaurant equipment.

EXHIBITORS AT A.G.A. COMBINED EXHIBIT—POWER SHOW
GRAND CENTRAL PALACE—NEW YORK DEC. 2-7, 1946

L. to R. Seated: N. E. Bertl, the Partlow Corp., New York, Earl Gilbert, Ernest C. Lundt, Inc., Caldwell, N. J., John Mehrman, American Gas Furnace Co., Elizabeth, N. J., Alvin M. Stock, The Partlow Corp., New York, A. V. Luderman, Mears-Kane-Ofeldt, New York.

L. to R. Standing: Wm. M. Smith, Selas Corp. of America—New York, H. W. Stridsberg, Consolidated Edison Co. of N. Y. Inc., Chas. Schisler, Prod. Mgr. Mears-Kane-Ofeldt, Phila., Pa., Howard Partlow, The Partlow Corp., New Hartford, N. Y., Wm. R. Hones, Charles A. Hones, Inc., Baldwin, L. I., N. Y., Robert Hones, Chas. A. Hones Inc., Baldwin L. I., N. Y.

Industrial and Commercial Conference at Boston

THE A.G.A. Sales Conference on Industrial and Commercial Gas sponsored by the Industrial and Commercial Gas Section. American Gas Association, will be held at the Coplay Plaza Hotel, Boston, March 17, 18 and 19, 1947, according to an announcement by Karl Emmerling, Chairman, Industrial and Commercial Gas Section.

A program has been tentatively outlined by the Program Committee under the chairmanship of Harry A. Sutton, Public Service Electric & Gas Co., Newark, N. J. It has been planned to devote one day to a commercial session, one day to an industrial session with one day in between to a combination of both and general subjects.

A reception to those attending the Conference will be sponsored by G.A.M.A. on Tuesday evening, March 18, the arrangements for this affair being in charge of Frank Fieser, F. J. Fieser Co.; Herman Gehnrich, Gehnrich & Gehnrich, Inc.; Harry O. King, Standard Gas Equipment Corp.; and Arthur Pitman, J. C. Pitman & Sons, Inc.

New Maintenance Manual for Commercial Gas Cooking Equipment

The American Gas Association has published a booklet entitled, "Getting the Most out of your Gas Cooking Equipment" which is available without charge for distribution to commercial gas cooking customers.

Your customers who have a part in the large national business of cooking the 65,000,000 meals that are served daily in public eating places will be glad to receive a copy of this publication. It will help them obtain successful operation by maintaining the utmost efficiency through observing good housekeeping rules in kitchen operation as it contains recommendations on: Care and cleaning of cooking equipment; The proper adjustment of burners and controls; Sound economical practices in using gas cooking equipment.

Gas companies will find this booklet a useful tool to "Continue the Trend to Gas for all Commercial Cooking." Write A.G.A. for a supply for your customers.

Industrial and Commercial Schools

Of interest to the gas industry at large and to industrial and commercial gas men in particular, are the two schools which will be sponsored by the Industrial and Commercial Gas Section, American Gas Association. Each of these schools will offer one week courses to train men in the latest methods and equipment for gas utilization. The Industrial Gas School will be held the week of May 5-9 at the Hotel Seneca, Columbus, Ohio, and the Commercial Gas School the week of May 12-16 in Washington, D. C., in the auditorium of the Washington Gas Light Company.

An outline of the courses will be sent to member companies and members of the Industrial and Commercial Gas Section, together with registration blanks and other pertinent information during January.

A preliminary survey conducted last Summer to secure opinions as to the value of such schools met with enthusiastic approval. The facilities arranged for will accommodate an increased enrollment, and it is hoped that every gas man who can possibly do so, attend one of these schools and avail himself of this opportunity for which there has been a great need in the gas industry.

Personnel Group Elects

At a meeting of the American Gas Association Mid-West Personnel Conference held in St. Louis on November 19, D. L. Sedgwick, Superintendent of Gas Operations, The Kansas Power and Light Company with headquarters in Salina, Kansas,

D. L. Sedgwick

was elected Chairman to succeed C. C. Jolley. Personnel Director, Natural Gas Pipeline Company of America. Vernon Myers, Manager, Insurance Department, Iowa Public Service Company, Sioux City, Iowa, was elected Vice-Chairman of the Group; while H. H. Duff, Personnel Director, Panhandle Eastern Pipe Line Co., Kansas City, Mo., was re-elected Secretary.

Laboratories Issues Consumer Booklet

A small, four-page pictorial consumer booklet on testing and approval activities of the American Gas Association Testing Laboratories has been issued by the Laboratories Managing Committee.

Bearing the title "Protecting Consumers —Seal of Tested Gas Appliances," the new booklet is in three colors. In very short copy it explains the meaning of the Laboratories Approval Seal to the consumer and presents pictorially testing and inspection operations.

The booklet is designed for distribution by gas companies, manufacturers, and dealers and may be obtained from the Laboratories at Three Dollars per hundred, or below the actual cost. It has been made available in connection with the widespread consumer interest in approved gas appliances.

Bridge Named Laboratories Managing Committee Chairman

Arthur F. Bridge, Vice President and General Manager of the Southern Counties Gas Company of California, has been appointed Chairman of the Managing Committee of the American Gas Association Testing Laboratories by President R. H. Hargrove.

Charles E. Bennett, President of The Manufacturers Light & Heat Company of Pittsburgh, has been named Vice-Chairman, a newly created post to facilitate handling of Laboratories activities. Wider geographical representation has also been achieved by appointment of two additional members: George F. Mitchell, President, The Peoples Gas Light & Coke Co. of Chicago, and Elmer F. Schmidt, Vice President and Operating Manager, Lone Star Gas Co. of Dallas.

Mr. Bridge succeeds George E. Whitwell, Vice President in Charge of Sales of the Philadelphia Electric Co., a member of the committee for 18 years and chairman for the past five years. Mr. Whitwell, in spite of pressure of other duties, retained the chairmanship throughout the war. He has consented to continue as a member of the committee.

Mr. Bennett has been a member of the committee since 1938. He entered the gas industry in 1915, holding various executive positions with Madison Gas & Electric Co., Binghamton Gas Works, Columbia Engineering and Management Corp., Home Gas Co., Keystone Gas Co., Eastern Pipe Line Co., Reserve Oil Corp., and Consumers Natural Gas Co. For the past 10 years he has been located in Pittsburgh as President of the Manufacturers Light and Heat Company.

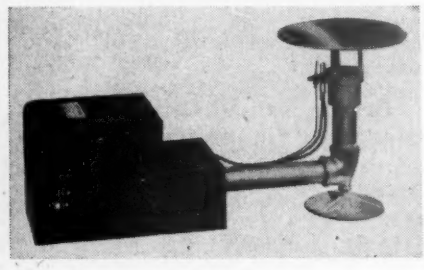
Mr. Mitchell entered the utility field in 1909 with the Commonwealth Edison Co. of Chicago. He joined The Peoples Gas Light and Coke Company in 1919 as assistant to the Chairman of the Board, becoming President in 1930.

Mr. Schmidt was associated with various utility companies, prior to joining the Lone Star organization in 1918. In 1935 he was elected Vice President and a Director. He is now in charge of production and transmission operations of his company, comprising one of the largest natural gas systems in the southwest.

New Equipment and Appliances

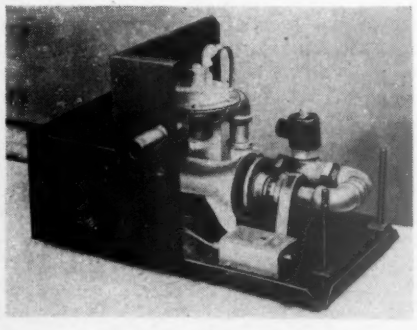
The Chore Boy

The Chore Boy Gas Heating Unit was designed after consulting sales and technical people in Gas Companies to determine the features they preferred.



Burner and Pilot
All Controls in Housing

Installation bugs have been eliminated by assembling and testing the unit at the factory and shipping it as a package, ready to slide in position when taken from the case. Ruggedly and simply built from cover to burner. The flame from the single large burner head tends to scrub the furnace wall. Small jets that carbon up and concentrate flame at a spot are eliminated.



Venturi and Controls
with Housing Removed

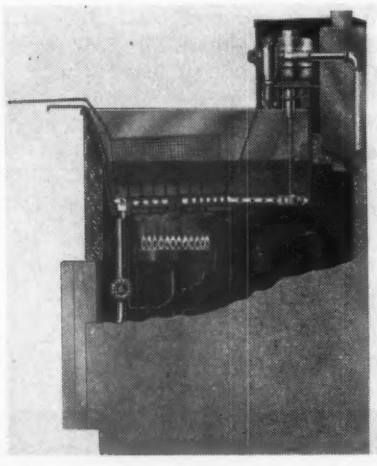
The pilot is located in direct contact with the burner for instant, silent ignition. It is visible through the furnace door and is easily removed for cleaning. A well designed venturi provides for adequate and proper mixing. All controls are concealed to prevent damage and tampering.

Manufactured by Standard Fuel Engineering Company, 669 Post Avenue, S. Detroit 17, Michigan.

Hilco Circulating Fryer

This fryer employs a new principle of heating the fat which is pumped through a coil integrated with the kettle and using a ribbon gas burner, at the rate of two gallons a minute. The unit is ready to fry in ten minutes from a cold start.

Holding but 15 to 18 pounds of fat it claims the same cooking capacity as fryers of the deep fat models, using 50 pounds, has no "cold zone" and saves both fat and cleaning time.



Hilco Fryer

A removable crumb tray, solid aluminum kettle and coil cast in one piece, and freedom from seams are other features which impart long service and speed of operation.

Distributed by A. H. McCreery Sales Co., 55 West 42nd St., New York.

Barbecue Broiler

Made of stainless steel and white porcelain enamel, the "Chieftan" table model barbecue broiler measures 11" x 15" with a height of 6". Four 10" stainless steel skewers with plastic handles, rotate automatically by an electric motor, or a clock mechanism with a key wind. Approximately two pounds of meat can be cooked on the skewers at the same time.

There are two removable gas burners, which fit in place beneath the skewers. As the skewers rotate, the meat comes in direct contact with the flame. Burners are individually controlled to allow "rare" and "well-done" cooking at the same time.

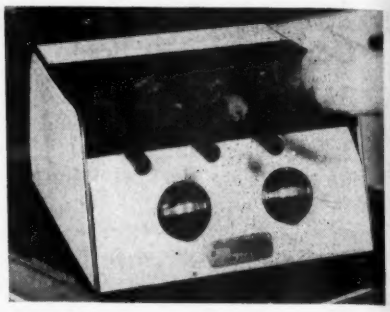


Table Model Broiler

For home use, it can be attached to the kitchen gas outlet by flexible gas tubing, and becomes a unit in itself, separate from the range. For outdoor cooking, the unit can be used with bottled gas, the only change necessary being in the spud.

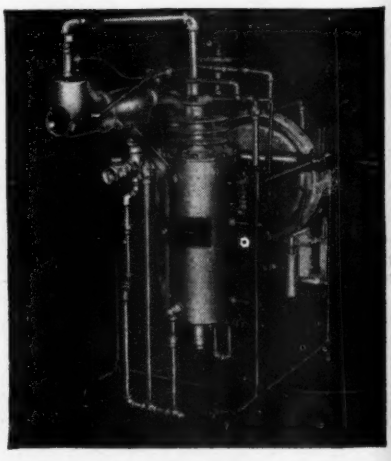
Maximum gas consumption for the two burners is 30 cu. ft. per hour with a maximum B.T.U. requirement of 15,000 per hour (manufactured gas) or 750 B.T.U. per three minutes, an average cooking time.

Made by David Nassif Co., Statler Bldg., Boston, Mass.

Vapofier for Standby

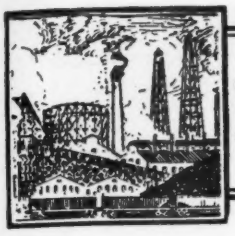
The Vapofier, developed by Vapofier Corporation, 10316 S. Throop St., Chicago 43, Illinois, serves a dual purpose for users of utility gas.

Practical for every type of industrial heat processing from baking ovens operating at 150° F. to high temperature furnaces requiring 3000° F.



Gas or Oil Premixer

Eight standard sizes are built with capacities from 70,000 B.T.U's per hour or .5 gallons per hour; to 2,000,000 B.T.U.'s per hour, or 14 gallons per hour. It occupies 2' x 4' of floor or overhead space.



News of the Gas Industry

Beebee Elected President of Rochester Gas & Electric Co.

A. M. Beebee

Alexander M. Beebee, has been elected President of the Rochester Gas & Electric Co., Rochester, N. Y. Mr. Beebee succeeds Herman Russell, who was elevated to tthe post of Chairman of the Board, vacated by Edward G. Miner who held it for nearly 15 years. Mr. Miner becomes chairman of the Executive Committee.

Mr. Beebee was born in Rochester in 1893, attended East High School where he was a track star, and was graduated from Cornell University with the degree of Mechanical Engineering in 1915. He entered the employ of the R. G. & E. in January 1916 as a cadet engineer in the gas manufacturing department and has been with the company ever since. In 1921 he was made assistant superintendent of gas manufacture and in 1927 became general superintendent. In December 1944 he was made vice president in charge of gas operations. Mr. Beebee has long been regarded as one of the foremost gas engineers of the country and has filled many important posts in the American Gas Association. During the past two years he has been a leader in the promotion of kitchen ventilation and a ventilation plan devised by him and the engineers of his department has become nationally known as the "Rochester system."

Mr. Russell was born in Manistee, Michigan in 1878 and attended the public schools there. He entered the University of Michigan at the age of 16 and was graduated with a B.S. degree in 1898. Following post-graduate work in chemistry and gas engineering he won his master's degree in 1900. After leaving college his first job was with the Detroit Gas Company where he became assistant superintendent. In 1903 he went to the San Francisco Gas and Electric Company and in 1905 came to Rochester to become assistant superintendent of the gas works. He was made assistant general manager in 1914, general manager in 1919, vice president in 1922 and president in December, 1929. He served as president of the American Gas Association, the highest post in the industry.

Mr. Miner has served as chairman of the Board of Directors of Rochester Gas and Electric since July 1932.

Dates Set For 1947 Southwestern Gas Measurement Short Course

Representatives of the Natural Gas Industry from twelve states attended a General Committee Meeting of the Southwestern Gas Measurement Short Course in Houston, Texas, November 11, 1946.

R. M. Scofield of the Lone Star Gas Company, Dallas, General Chairman, presided. The dates of May 6, 7, and 8th, were set for holding the 1947 School to be held at the University of Oklahoma, Norman, Oklahoma.

Other business of the meeting included the election of Committee Chairmen and action on recommendations of the Executive Committee. Committee Chairmen elected were as follows: Program Committee, E. C. McAninch, Oklahoma Natural Gas Company, Ardmore, Oklahoma; Publications Committee, W. H. Woods, Gulf Oil Corporation, Houston, Texas; Exhibits Committee, George E. Greiner, Phillips Petroleum Company, Bartlesville, Oklahoma; Practical Methods Committee, Chairman: B. F. Worley, United Gas Corporation, Houston, Texas, and Vice-Chairman: J. L Griffin, Northern Natural Gas Company, Omaha, Nebraska; Registration and Publicity Committee, Miss Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City; and Local Arrangements Committee, W. H. Carson, Dean, College of Enginering, University of Oklahoma, Norman, Oklahoma.

Hall, Assistant Director

Appointment of Clifford E. Hall as assistant director of the Promotional Bureau of the American Gas Association has been announced by H. Carl Wolf, A.G.A. managing director. He will assist John H. White, Jr., director of the Bureau, in carrying out the greatly enlarged promotional program included in the gas industry's Research and Promotional Plan.

As a reporter on the Waterbury Republican and American, Waterbury, Conn., for five years, Mr. Hall contributed to the winning of the Pulitzer Prize for those newspapers in 1939. He was assistant director of public relations for the Connecticut Light and Power Company for 3½ years, during which time his work was frequently cited by the Public Utilities Advertising Association.

He has been a member of the creative staff of Batten, Barton, Durstine and Osborn, advertising agency, and was director of press publicity of United China Relief. Prior to joining the American Gas Association Promotional Bureau in July, 1946, he was assistant director of public relations for American Home Products Corporation.

CONVENTION CALENDAR

January

20-23 *A.G.A. Home Service Workshop,* Netherland Plaza Hotel, Cincinnati.

February

13-14 *Residential Gas Section, Eastern Natural Gas Sales Conference,* Roosevelt Hotel, Pittsburgh.

March

17-18 *Residential Gas Section, Midwest Gas Sales Conference,* Edgewater Beach Hotel, Chicago.

20-21 *New England Gas Association,* Annual Meeting, Boston, Mass.

24 *G.A.M.A.* Hotel, Restaurant and Commercial Gas Equipment Division, Stevens Hotel, Chicago.

April

7-9 *A. G. A.- E. E. I. Accounting Conference,* Hotel Statler, Buffalo.

14-16 *Distribution and Motor Vehicle Conference,* Hotel Cleveland.

14-16 *G. A. M. A. Annual Meeting,* Drake Hotel, Chicago.

16-18 *Southern Gas Association,* Biloxi, Miss.

25-26 *Gas Meters Association of Florida-Georgia,* Boca Raton, Florida.

30-May 2 *A. G. A. Nautral Gas Department,* Spring Meeting, Stevens Hotel, Chicago.

May

15-17 *Indiana Gas Association,* French Lick Springs Hotel, French Lick.

20-22 *Pennsylvania Gas Association,* Wernersville, Pa.

June

2-4 *Joint Production and Chemical Committee Conference,* Hotel New Yorker, N. Y.

9-11 *Canadian Gas Association,* General Brock Hotel, Niagara Falls, Ontario.

23-24 *Residential Gas Section,* New York-New Jersey Sales Conference, Essex and Sussex Hotel, Spring Lake, N. J.

September

23-25 *Pacific Coast Gas Association,* Hotel Del Coronado, San Diego, Cal.

29-Oct. 3 *American Gas Association,* Annual Convention, San Francisco.

Consolidated Edison Conducts Training School

Consolidated Edison Company of New York, Inc., in October began a series of courses on the installation, adjustment and starting of gas appliances, attended by plumbers, heating contractors, manufacturers and distributors of gas appliances, co-operating appliance dealers and builders. Consisting of three two-hour sessions on successive days, the courses are limited to ten persons each so that the equipment demonstration can be observed by all who attend. Water heaters, burners, conversion burners, space heaters and industrial appliances, with piping, meters and other equipment connected are used in the lecture demonstrations, which are given by members of the Service Bureau of the Distribution Operation Department and Sales Engineering Bureau of the Sales Department.

Classes are being given in response to a Sales Department offer, sent to other members of the gas industry in the company's territory, for instruction in gas appliance installation along with a brochure of suggestions on installing and starting such appliances. Sessions will continue to be scheduled until all who expressed an interest have had an opportunity to attend. Similar instruction on the installation and starting of gas refrigerators recently was given by the Sales Department to plumbers.

"These courses of instruction are in line with company practice of cooperating with others in our industry," said Brigadier General E. F. Jeffe, vice president in charge of sales, "so that they may cooperate in the company's established merchandising plan and policy of discontinuing the direct purchasing, warehousing, and sales of electric and gas appliances and equipment as soon as such equipment has received sufficient public acceptance as to merit sale through the regularly established channels."

Consolidated Edison employe explains the functions of parts of a gas conversion burner for house heating to one of the classes taking the course sponsored by the company's Sales Department.

"Old Timers Club," Seattle, Wash.

One hundred and fifteen members of the "Old Timers Club" of the Seattle Gas Company, Seattle, Wash., were honored guests at a banquet on November 25th, at which time they received service pins to designate their years of service. The group has a membership of one hundred and eighty-eight, requirement for which is five or more years of continuous service for the Seattle Gas Company. Of this number, forty-seven employees having twenty-five years or more service and representing a total of 1,534 years' service received pins of solid gold. N. Henry Gellert, President of the Company, delivered the featured address of the evening and presented the gold pins to the group.

The service pin is well designed and is in the form of a miniature gas holder with the blue flame of the Gas Industry imposed upon it in blue enamel.

The dean of the group was R. M. Anthony, who has been in the service of the company for a total of fifty-four years. Mr. Anthony began service with the Company as a meter reader on September 1, 1892 and has continued since that time in various capacities, including fitting shop, collector and supervisor in the accounting department.

It is the policy of the Company to retire an employee when he reaches the age of sixty-five, but Mr. Anthony has requested that he be permitted to continue on his job and is proving his ability to hold it by doing more work than anyone else in the department.

The guest of honor was Major William P. French, an employee of the Company who is still serving with the United States Army. Mrs. Laura Bratrud, with 36 years service to her credit, was dean of the woman's group.

Charles M. Sturkey, Vice-President and General Manager of the Company, substituted in the absence of the Club President by conducting the election of officers for the ensuing year and also acted as Master of Ceremonies for the occasion.

A.S.H.V.E Meeting

The American Society of Heating and Ventilating Engineers will hold a meeting at the Statler Hotel, Cleveland, O., Jan. 27-30, 1947.

During this week the 7th International Heating and Ventilating Exposition will be held at Lakeside Hall. On two of these days, January 29 and 30, the National Warm Air Heating and Air Conditioning Association will convene at the Hotel Cleveland for its 33rd Annual Convention.

Events for ASHVE members will commence on January 26 when a series of committee meetings will be held at Hotel Statler and at the Society's Research Laboratory, 7218 Euclid Avenue. On Monday the opening session will be held at the Laboratory and special dedication ceremonies will be conducted to commemorate the official opening.

During the afternoon a forum on panel and radiant heating will be conducted and because of the popularity of the subject a heavy attendance at this session is anticipated.

The technical session on Wednesday morning at the Hotel Statler will be devoted to atmospheric environment and health hazards and during the afternoon several inspection trips have been arranged by the local chapter.

New Gas Pipeline Is Authorized Between Texas and Michigan

Federal Power Commission today authorized a new $84,000,000 natural gas pipe line between Texas and Michigan and Wisconsin.

The decision enables the Michigan-Wisconsin Pipe Line Company to build 1,076 miles of line with 892 miles of branch line from the Hugoton gas field in Texas.

The commission also authorized Panhandle Eastern Pipe Line Company to construct $23,644,000 of additional facilities to its Texas-Michigan natural gas pipe line system.

The new Michigan-Wisconsin pipe line would bring natural gas into Wisconsin for the first time. It would serve Detroit in Michigan; Milwaukee, Madison, Oshkosh, and Janesville in Wisconsin and four small Missouri communities.

"Tubeless" Residential Steel Boilers is the title of bulletin issued by Republic Boiler Corporation, 30 Church St., New York 7. Novel design uses flue-ways instead of tubes. Built in accordance with A.S.M.E. code. Gas or oil fired. Enameled steel jacket with rock wool insulation.

Friedman Appointed To Water Heating Group

Arthur Friedman, vice-president of The Cleveland Heater Co., Cleveland, Ohio, has been appointed chairman of the American Gas Association's Technical Advisory Group for Gas Water Heating Research it is announced by F. M. Banks, chairman of the Committee on Domestic Gas Research. The appointment was made on recommendation of the Gas Appliance Manufacturers Association. He succeeds L. R. Mendelson.

Arthur Friedman

Widely known in the water heater industry for more than 35 years, Mr. Friedman has been active in A.G.A. affairs since its organization. He was a member of the original Committee on A.G.A. Approval Requirements for Gas Water Heaters and has been a member of the Technical Advisory Committee for Gas Water Heating Research for several years. He is also a member of the Water Heating Committee of the Residential Gas Section and the Requirements Committee for Draft Hoods.

Florence Stove Appoints New Sales Executives

Harvey E. Golden was elected Vice President of the Florence Stove Company, Gardner, Mass., it was announced at a meeting of the Board of Directors. Mr. Golden, formerly General Sales Manager, succeeds Henry H. Morse, for many years a prominent leader in the industry, who is retiring after 22 years' association with Florence.

Florence President, Robert L. Fowler, also announced that Robert H. Taylor, formerly New York Division Sales Manager, has been appointed General Sales Manager to succeed Mr. Golden. George A. Quinlan, Florence representative in the Chicago area becomes Mr. Taylor's successor as New York Division Sales Manager.

Mr. Golden who is one of the most widely known executives in the industry joined Florence in 1926. He was Florence manager of the Midwest Sales Division with headquarters in Chicago before becoming New York Division Sales Manager in 1929. He has been General Sales Manager at the home office in Gardner since 1941.

Harvey E. Golden Robt. H. Taylor

Mr. Golden's successor, Robert H. Taylor, assumes his new responsibilities as General Sales Manager with a successful 14-year record in the Florence sales organization. He was graduated from Northwestern University and became associated with Florence in 1932. After attending the Florence training school in Gardner, he was sales representative in the Iowa, Missouri, and Illinois territory. In 1937, he became Assistant Manager of the New York Sales Division and was appointed manager of this division in 1941.

Gas Service Co. Merger

Merged into The Gas Service Company will be the Kansas City Gas company and The Wyandotte County Gas company, all outstanding stock in the three companies being owned by Cities Service company.

The plan of merger was recently laid before the Securities and Exchange commission in Philadelphia and will be submitted also for the sanction of the state commissions of Missouri, Kansas and Nebraska.

Ben C. Adams is president of all three companies, so there will be no change in the over-all executive status once the merger plan is approved and carried into force. T. J. Strickler will continue as general manager of the Kansas City, Mo., property, with Clarence H. Waring remaining general manager of property in Kansas City, Kansas.

In a statement to the SEC these two reasons were given for the desire of the Cities Service interest to consummate the merger and financing:

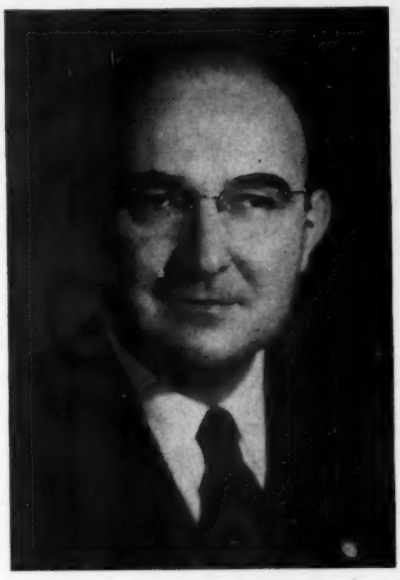
1. To combine under one corporate entity the properties of the constituent companies, thereby eliminating two unnecessary corporate entities with cumbersome and complex capital structures.

2. To merge three gas utility companies which derive natural gas from a common source of supply and which are so located and related that the surviving company will own and operate a single coordinated and integrated system of gas utility properties and by such merger efficiency of management will be substantially promoted.

Deep Fat Fryers: Bulletin 302 issued by The Hilliard Corporation, Elmira, N. Y., describes and gives specifications of model K.V. 13 for one or two baskets. The newer models use the Ensign Ribbon Burner. Bulletin and additional data sent on request.

Newcomb, Executive Vice-President, Servel, Inc.

Harry Newcomb, present vice-president and assistant to the President, was named executive vice-president of Servel, Inc., it has been announced by Louis Ruthenburg, president.

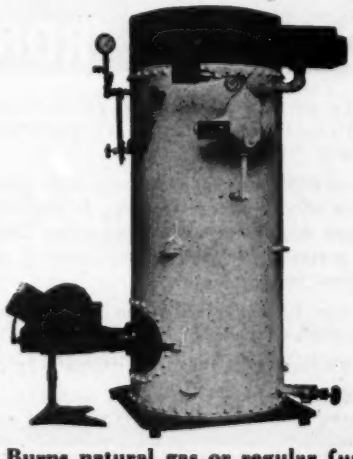


Harry Newcomb

Mr. Newcomb came to Servel in the Fall of 1934 as manager of the Commercial Refrigeration Division. In 1942, he was made vice-president and manager of the Electric Refrigeration Division, and in 1943 he was appointed assistant to the president, retaining the title of vice-president.

Previous to his association with Servel, Mr. Newcomb was with the Norge Division of the Borg-Warner Corporation.

LATTNER
GAS — OIL BOILER
3 HP to 35 HP.



Burns natural gas or regular furnace oils with equal efficiency using same burner.

P. M. Lattner Mfg. Company
Cedar Rapids, Iowa

25 Year Service Guild American Meter Co.

At a dinner given to American Meter Company's 25 year Service Guild members at the DeWitt Clinton Hotel, Albany, N. Y. on December 4, Mr. Norton McKean, President, awarded recognition to five new members of the Guild from the D. McDonald Works at Albany. The Guild in the Albany plant now has 72 members, comprising approximately 14 percent of the personnel.

The five who were the latest to qualify for the honors to which their quarter century of continuous service has entitled them are Leo Rivers, George A. Nicklas, George W. Winne, Arthur M. Manweiler, and Charles C. Schlosser. Bernard J. Holtslag is senior in point of service, having joined the Company in 1886.

Change in Company Name

Change of name of the B. C. Electric Power and Gas Co. Ltd. has now been approved by the British Columbia government. The change is in line with the refunding program which was recently approved by the government, and in future the B.C. Electric Power and Gas Co. Ltd., which is a subsidiary of the B.C. Electric Railway Co. Ltd., will be known as the B.C. Electric Co. Ltd.

Under the reorganization plan, the new company will handle all matters pertaining to electric power and gas while the B.C. Electric Railway Co., the sister firm, will continue in its present capacity of directing the transportation end of the business.

Crawford and Teller, Vice-Presidents, Bryant Heater Co.

The appointment of James N. Crawford and William R. Teller as vice presidents of Bryant Heater Company, Cleveland, O., is announced by Lyle C. Harvey, president.

Both Crawford, formerly sales manager, and Teller, heretofore director of engineering and development, will continue work in their respective fields.

William R. Teller James W. Crawford

The appointments reflect the expanded operations of the company, which are utilizing an additional Cleveland plant and a new plant in Tyler, Texas.

Mr. Crawford is a native of Cleveland and a graduate of Case School of Applied Science, which granted him a Bachelor of Science degree in Mechanical Engineering. A member of the staff of the American Gas Association's Testing Laboratory following his graduation from Case, Mr. Crawford became associated with the Bryant Heater Company in 1933 and is well-known in the gas heating sales field.

Mr. Teller, who has directed Bryant's research and development since 1944, was previously associated with the Cleveland testing laboratories of the American Gas Association as assistant director. A member of Sigma Chi, he was graduated from Case School of Applied Science in 1927 with the degree of bachelor of science in mechanical engineering and spent the following three years gaining field experience in gas and oil production in western Kentucky.

Pressure Reducing Valves. Bulletin 461, 20 pages completely illustrated in color, giving engineering, operating and maintenance data on Pressure Reducing Valves, Differential Valves and Overflow Valves for steam, air or gas services, has been issued by Leslie Co., 91 Delafield Avenue, Lyndhurst, New Jersey.

Large cross-sectional and external views of each class of regulator are shown, together with construction details, exclusive features such as stellited seat rings, and complete tables of pressure ranges, sizes, and capacities.

A handy, easily read "ready-reference" index chart at the front of the Bulletin simplifies selection of the best valve for any specific industrial applications.

GEORGE TRENHOLM MACBETH
CONSULTING ENGINEER
FORMERLY
CHIEF GAS ENGINEER
WESTCHESTER LIGHTING CO.
14 BROOKSIDE CIRCLE
BRONXVILLE 8, N. Y.

For Real Gas-purifying Power
CONNELLY IRON SPONGE

• To get top efficiency in gas-purification at the lowest cost, use Connelly Iron Sponge. It's the finest purification material to be had.

Connelly Iron Sponge has a high degree of activity. It gives longer service before fouling. It revivifies more quickly. Leading gas companies have been using this "blue-ribbon" purification material for years—they know it can be relied upon to do the best job.

If you have a problem in gas-purification, take advantage of Connelly's 71 years of experience. Our engineers will be glad to help you . . . there is no obligation. Consult Connelly!

Connelly Valves, Governors, and Manometers are now manufactured and sold only by Norwalk Valve Co., South Norwalk, Connecticut. Connelly will, however, continue to manufacture and sell Gas Purification Equipment including Connelly Iron Sponge, pH Kits, Caloroptics, and BTU Control equipment in connection with propane and butane.

CONNELLY IRON SPONGE & GOVERNOR CO.
Elizabeth, N. J. Los Angeles, Calif.
3154 S. California Ave., Chicago 8, Illinois

"Elno" Trade Mark Registered
RUST PREVENTER
For Steel Hot Water Storage Tanks

Rust NO LONGER A Must!

"ELNO" eliminates the need for expensive nonferrous or specially-processed tanks even where water is so highly-corrosive that such tanks have always been considered essential. It is not like some chemical "rust inhibitors" which merely bleach discolored water and do little or nothing to prevent rust or protect the tank. "ELNO" really routs rust, requires no attention, and causes no further expense after installation.

Get set now to tap an important new source of profit by offering your customers maximum security against rust and corrosion in the equipment you sell and service. The field is broad because "ELNO" is available in types and sizes for all makes of heaters and boilers. Write for technical, catalog, price and promotional information today.

PATENT APPLIED FOR
The Cleveland Heater Co.
2310 Superior Ave. Cleveland 14, Ohio

CLEAN, RUST-FREE HOT WATER AT LOWEST EQUIPMENT COST

Indiana Gas & Water Co. in New Quarters

Climaxing an extensive remodeling and expansion program throughout the State of Indiana, the Indiana Gas & Water Company, Inc., moved into its new general office building at 1630 N. Meridian Street, Indianapolis, December 9th.

Since the organization of the utility, late in 1945, which serves 60 committies outside of Indianapolis, thirteen of the fifteen district offices have moved into either new buildings or existing structures completely remodeled.

As of November 1st, the Indiana Gas & Water Co., Inc. was serving 64,953 gas customers and 30,436 water customers. Operating territory extends northward from New Albany and Jeffersonville on the Ohio River to Huntington.

Extensive service improvements have been planned and many are completed; 34 miles of six-inch, high pressure transmission lines have been laid, and 22 miles of eight-inch is now under construction between Bloomington and Bedford.

The modern general office building of reinforced concrete and Indiana limstone was designed and erected exclusively for the utility and will house its 80 office employees. It is so planned that a second story can be added as soon as building conditions permit.

Officers of the company are: L. B. Schiesz, president, Paul Stark, vice president; Fred W. Dopke, vice president, and E. B. Smith, secretary.

Grayson Heat Control, Ltd. Appoints Beck on Sales Staff

Hal Singleton, Sales Manager of Grayson Heat Control, Ltd., of Lynwood, California, announces the addition of A. W. Beck to the sales staff, with headquarters in Lynwood.

Al Beck, while employed with the Southern California Gas Company for eight years, divided his time between the Customers Service Department and the Sales Department. After spending some time as a service man, he was made an instructor in the Employee Training Department. At the time of his resignation with the Gas Company, he was Hotel and Restaurant sales representative.

Jones, Salesmanager North Shore Gas Co.

Roy E. Jones

Roy E. Jones, for the past four years division manager of the North Shore Gas Co., Waukegan, Ill. has been appointed Sales and Advertising Manager with headquarters in the company's general offices in Waukegan.

In his new position, he will head up an extensive sales and advertising program which is expected to be launched when the company converts to natural gas next spring.

T. P. (Tom) Clark of Highland Park is the newly appointed division manager.

Little Elected Vice President, Institute of Cooking

Stanley E. Little, vice president in charge of sales for American Stove Company in Cleveland, has been elected Vice President and Trustee of the Institute of Cooking and Heating Appliance Manufacturers, according to a recent announcement by the Institute.

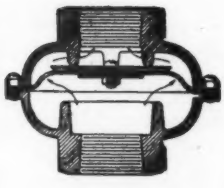
Mr. Little has been actively engaged in Institute activities as well as other nation wide organizations within the gas industry. In his new post, he will help to reconvert the Institute to a peacetime basis.

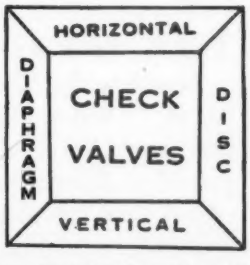
Cook Elected to A.G.A. Board

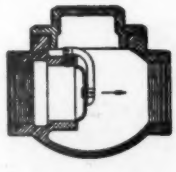
Henry R. Cook, Jr., vice-president, Consolidated Gas Electric Light and Power Co., of Baltimore, Baltimore, Md., was elected a director of the American Gas Association at the December 4 meeting of the Board of Directors, according to an announcement made by R. H. Hargrove, president. Mr. Cook will fill the unexpired term of the late Charles M. Cohn.

Upon graduation from Stevens Institute of Technology in 1905, Mr. Cook entered the gas industry with the Public Service Corporation of New Jersey. Prior to joining Consolidated Electric Light and Power Co. of Baltimore in 1918 as assistant chief engineer of gas operations, he was employed for ten years by the United Gas Improvement Co. of Philadelphia. Shortly after going to Baltimore, Mr. Cook became general superintendent. In 1938 he was elected vice president and in 1943 a director.

Pressure Controls for Gas and Air





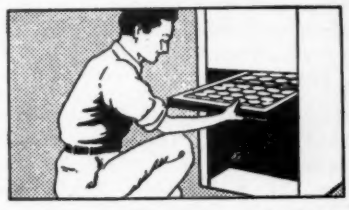


NORWALK VALVE COMPANY

Manufacturers of Connelly Governors, Valves and Gauges

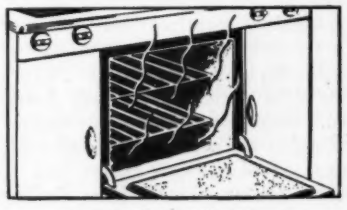
33 Railroad Ave. South Norwalk, Conn.

Help save Gas!



Replace Dirty Furnace Filters

Close Off Unused Rooms



Don't Heat with Ovens

It's easy to save gas! And what you save now will be ready for use later in the winter.

THE OHIO FUEL Gas Company

Effective use of single column newspaper space featured in local newspapers during December by The Ohio Fuel Gas Company. Economy is the keynote during peak demand for heating.

Oklahoma Utilities Association Elects 1947 Officers and Directors

President: S. I. McElhoes, Public Service Company of Oklahoma, Chickasha
First Vice-President: L. A. Farmer, President, Northern Oklahoma Gas Company, Ponca City.
Second Vice-President: Malcolm Morrisson, Oklahoma Gas and Electric Company, Oklahoma City.
Treasurer: E. C. Joullian, President, Consolidated Gas Utilities Corporation, Oklahoma City.
Secretary: Miss Kate A. Niblack, 626 Biltmore Hotel, Oklahoma City.

Directors:—Three-Year Term: S. I. McElhoes (see above), Chickasha; W. R. Thomas, Oklahoma Manager, Southwest Natural Gas Company, Ada, Oklahoma.

Directors:—One-Year Term: E. C. Joullian, Oklahoma City; R. K. Lane, President, Public Service Company of Oklahoma, Tulsa; J. Y. Wheeler, Oklahoma Manager, Lone Star Gas Company, Ardmore; A. F. Potter, District Manager, The Gas Service Company, Bartlesville; W. L. Woodward, President, Zenith Gas System, Inc., Alva.

Directors:—Hold-overs: L. A. Farmer, Ponca City; J. C. Happenny, President, Oklahoma Power and Water Co., Sand Springs; D. S. Kennedy, Vice President and Treasurer, Oklahoma Gas and Electric Company, Oklahoma City; Frank B. Long, Vice President, Oklahoma Natural Gas Company, Tulsa.

F. H. Lerch, Jr. Chairman

F. H. Lerch, Jr., president of Consolidated Natural Gas Co., New York, was elected chairman of the Finance and Control Committee of the American Gas Association at the December meeting of the Association's Executive Board.

Other members of this committee, which is one of the most important in the organization, were elected as follows: James A. Brown, vice-president, The Commonwealth and Southern Corp., New York; R. E. Ramsay, president, New Haven Gas Light Co., New Haven, Conn.: Paul R. Taylor, vice-president, Stone and Webster Service Corp., New York; and P. S. Young, chairman of Executive Committee, Public Service Electric and Gas Co., Newark, N. J.

A. K. Root Retires

Albert K. Root, Manager of the Heating Accessories Department of the American Radiator & Standard Sanitary Corporation, retired December 31st, after 45 years of service with American-Standard and its predecessor companies.

Mr. Root is well known in the heating industry, having first been employed by the American Radiator Company in 1901 as a salesman in Chicago. Since that time, he has held various positions with the Company in Chicago, Buffalo, New York, and Pittsburgh. He moved to Pittsburgh in 1940, following the integration of the Sales Departments.

Hulcy Elected President Chamber of Commerce

D. A. Hulcy, President, Lone Star Gas Co., Dallas, Texas, was elected President of the Dallas Chamber of Commerce, Dec. 13, 1946.

Mr. Hulcy, long active in Dallas civic affairs, succeeds B. F. McLain, now serving his fourth term as president.

Consumers Power Co. Storage Plan Approved

A $20,000,000 project for underground storage of natural gas in Michigan to meet the growing demands of the Consumers Power Co. was approved by the Federal Power Commission.

Consumers power serves Flint, Saginaw, Lansing, Pontiac, Kalamazoo, Jackson Bay City, Royal Oak and other cities in Michigan.

A certificate was granted to the Michigan Gas Storage Co., organized in June by Consumers Power and Panhandle Eastern Pipeline Co.

The project calls for the storage company to buy natural gas from Panhandle, store it during the summer in the depleted Winterfield and Cranberry Lake gas fields of Michigan and to sell it in the peak-demand winter months to Consumers Power.

One-Day Sellout

The first postwar shipment of Hamilton Dryers to the Philadelphia, Pa., district was sold in eight hours. The Hamilton Clothes Dryer is automatic and gas fired.

This successful promotion was piloted by Peirce Phelps Company, distributors for Hamilton Dryers who touched it off with a meeting of their dealers prior to release date of the merchandise. Principal speakers at this gathering included William A. Friedrich, of the Hamilton Manufacturing Company, Two Rivers, Wisconsin, and Harold Zeamer, Supervisor of Dealer Relations, Philadelphia Gas Works Company. Mr. Zeamer told the meeting of his Company's interest and activity in backing the sale of Hamiltons, and explained the extensive advertising with which the gas Works Company was supporting this initial effort.

Large space display advertising was run over the signatures of The Philadelphia Gas Works Company; leading stores, plus numerous smaller advertisements by other appliance shops and specialty stores handling the Hamilton Dryer.

S. P. Cobb Retires

Stephen P. Cobb, Consulting Gas Engineer, Ebasco Services Incorporated, has retired from active work with that company. Mr. Cobb has been engaged in gas operating and engineering work for over 40 years, of which over 30 years have been with Electric Bond and Share Company or its subsidiaries.

During his many years of service in the gas industry, Mr. Cobb has been active in American Gas Association work, especially in the Technical Section. He is at present a member of the Managing Committee of that Section.

Conley Elected President Coroaire

A. W. Conley, pioneer and developer of compact air conditioning and heating units for moderate priced homes, was elected president of the Coroaire Heater Corporation of Cleveland, succeeding E. R. Smead, who becomes chairman of the board of directors. Mr. Conley has served Coroaire as executive vice president and general manager since its organization in 1944.

Mr. Conley, a native of Syracuse, N. Y., has been prominent in Cleveland business and social activities for 20 years. He was educated in Rugby Preparatory School, served as an instructor in officers' training during World War 1 and served in the Army overseas as an officer of the Ohio Division.

C. E. Lyon Retires

After more than forty-six years of active service with Cribben and Sexton Company, Chicago, Mr. Carl E. Lyon retired as Vice President and Director of Purchases, December 31, 1946. Mr. Lyon will continue his association with the company in an advisory capacity.

In August, 1900 Mr. Lyon joined Cribben and Sexton as a stockroom boy. In time he was promoted to Timekeeper in the Nickel Shop, then to Head Timekeeper and Paymaster. Later he was made General Superintendent, then Vice President and Director of Purchases.

The Reliable Shut-Off for Street Mains

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

Safety Gas Main Stopper Co.
523 Atlantic Avenue. Brooklyn. New York

INDEX TO ADVERTISERS

American Meter Co. ..... —
American Stove Co. ..... —

Blaw-Knox Company ..... —
Bryant Heater Co. ..... —

Cast Iron Pipe Research Ass'n. The 18-19
Chaplin-Fulton Mfg. Co. 12
Cleveland Gas Meter Co. 36
Cleveland Heater Co. 46
Cleveland Trencher Co. 23
Coal Carbonizing Co. 36
Columbia Burner Co. 27
Connolly Iron Sponge & Governor Co. 46
Consolidated Industries ..... —
Coroaire Heating Corp. ..... —
Cribben & Sexton Co. ..... —
Cruse-Kemper Co. 28

Detroit-Michigan Stove Co. ..... —
Dresser Mfg. Div., Dresser Industries ..... —

Gas Consumers Assn. ..... —
Gas Machinery Co. 36
Gas Purifying Materials Co. 36
General Gas Light Co. ..... —

Harper-Wyman Co. 10
Hook & Ackerman ..... —
Hot Boy, Inc. ..... —

Inland Manufacturing Co. 27

Lambert Meter Co. 36
Lattner Mfg. Co., P. M. 45
Lincoln Electric Co. ..... —

Macbeth, G. T. 46
Metric Metal Works ..... —

Norton Company 7
Norwalk Valve Company 47

Pacific Gas Corp. 8-9
Pittsburgh Equitable Meter Division, Rockwell Manufacturing Co. ..... —

Republic Flow Meters ..... —
Reynolds Gas Regulator Co. 27
Roberts-Gordon Appliance Corp. 2
Robertshaw Thermostat Co. ..... Front Cover
Roper Corp., Geo. D. 51

Safety Gas Main Stopper Co. 48
Semet-Solvay Engineering Corp. 3
Sellers Engineering Corp. ..... —
Servel, Inc. 4-5
Skinner Co., M. B. ..... —
Smith Corporation, A. O. ..... —
Sprague Meter Co. ..... Back Cover
Stacey Bros., Div. Dresser Industries 20
Stacey Manufacturing Co. 38
Standard Fuel Eng. Co. 36
Superior Meter Co. 26
Syntron Co. 24

United Engineers & Constructors, Inc. 6

Vulcan Proofing Co. ..... —

Attention Gas Companies Why Send Out Your Meters for Repairs

Would you like to start your own meter repair department? Shop Repair Foreman, 20 years experience, top-notch man, thoroughly familiar with all phases of meter repair will supervise installation of meter repair equipment and train your personnel to do repairs in your own shops. If you prefer I will repair meters on contract on your premises. Address Box 160, c/o AMERICAN GAS JOURNAL, 53 Park Place, New York City 7.

Gas Pulsation. Bulletin P.D. 1 entitled "The Effects and Corrections of Gas Pulsation Problems," contains an authoritative article by Mr. Foster M. Stevens, Research Engineer.

The author discusses the many different gas pulsation problems and some of the attempts made to correct them. He also discusses the Fluor Pulsation Dampener in detail, an equipment that completely changes pulsative flow into a steady stream. Illustrated with many pictures, charts and diagrams. Available on request from the Fluor Corporation, Ltd., 2500 South Atlantic Blvd., Los Angeles 22, California.

Gas Engineer Available

Practical Gas Engineer and Manager wants to take over to own a gas plant large or small, where present owners can't make good. Any location, any kind of gas. Address Box 161. c/o AMERICAN GAS JOURNAL, 53 Park Place, New York 7, N. Y.

Position Open

Position Open as Assistant to General Manager of New England Gas Utility 500,000 M. Annually. Prospect of succeeding to General Managership in 3 or 4 years. Graduate engineer with background of experience in operating water gas property preferred. Excellent salary prospects. Give full particulars in application. Confidential. Write Box 162, c/o AMERICAN GAS JOURNAL, 53 Park Place, New York City.

SAMUEL E. FAIRCHILD, JR.

Samuel E. Fairchild Jr., seventy-four, chairman of the board of the Cruse-Kemper Co., of Ambler, Pa., makers of gas holders, tanks and steel plate construction, died December 31st.

George Bains Retires— Succeeded by R. L. James

George B. Bains, III, manager Operating Department, the Harrisburg Gas Company, Harrisburg, Pa., since March, 1922, retired December 31. He was succeeded by Richard L. James, assistant manager, Operating Department.

Announcement of Mr. Bains' retirement and the appointment of Mr. James was made by Leonard B. Richards, president. Mr. Bains is a veteran of over forty-eight years in the gas industry and has the longest record of service with the company and its affiliates, of any employe in the Harrisburg Gas Company.

Richard L. James graduated at Lehigh University, mechanical engineering, class of 1908. Then for several years he was connected with various steel companies in the East and on the Pacific Coast in general engineering and construction activities. He became associated with the Philadelphia Gas Works Company in 1915 and after extensive experiences in operating, construction and distribution activities with the United Gas Improvements Company he was transferred to the Harrisburg Gas Company in 1922 as assistant manager operating department.

Water Heating

(Continued from page 30)

lizing temperature. If the booster heater is of the instantaneous type, its capacity must be interpreted in terms of rate of flow available in gallons *per minute* as described in section 4 of Part 1 of Chapter VII, preceding.

(4) The patented booster - recovery water heating system which requires only a *single* water heater and a *single* hot water storage tank is, under certain conditions of hot water demand, ideally suited to supplying hot water at *two* temperatures. In this system—the advantages and limitations of which are described in detail in Part 2 of Chapter IV, preceding—the heater functions *both* as a recovery water heater to heat and maintain a stored reserve of hot water in a storage tank and *also* as a booster heater to raise the hot water from the storage tank to higher temperatures.

It must be remembered, however, that this type of system should be employed only where the characteristics of the hot water demand conform to those described below:

—The Demand for *high* temperature water *must be intermittent.*

—The combined time of *all* intervals in which the heater must function as a booster should *not* exceed twenty minutes out of any given hour of peak demand for hot water at both temperatures.

—The ratio of booster to total operating time *must* be such that approximately *twice* as much time as required for booster operation will be available for recovery operation of the heater.

—The *total* demand for "Boosted" hot water during a given hour of peak demand *should not* exceed one half of the *combined* requirements for hot water at normal temperature plus "Boosted," high temperature water unless a demand for hot water at normal temperature does not exist.

Consolidated of Baltimore Elects New Officers

At a meeting of the Board of Directors of the Consolidated Gas Electric Light and Power Company of Baltimore held December 19th, Wm. Schmidt, Jr., President of the Company, was also elected Chairman of the Board of Directors to fill the vacancy caused by the death of Charles M. Cohn.

Charles P. Crane, Executive Vice-President, was elected a member of the Board of Directors and of the Executive Committee at the same meeting.

Manufacturers

(Continued from page 17)

of the homes off gas company lines, expects to add new customers at the rate of 500,000 per year in the immediate future.

Refrigerators

The gas refrigeration industry's production in 1946 was slightly in excess of their best previous year. Their expanded production facilities will permit increased production in 1947, depending upon the availability of sheet steel and other materials.

Water Heaters

Sales of automatic gas water heaters during 1946 reached 1,250,000 units. Expanded production facilities, when unhampered by labor and supply curtailments, will enable the industry to more than double its 1941 peak production figures. The trend of the industry is toward larger size automatic gas water heaters to supply the increasing needs for instantly available supplies of hot water for automatic home laundry equipment, dishwashers, and other uses.

The introduction of the automatic gas clothes dryer as a companion piece to the automatic cycle clothes washer, presents a new, large, undeveloped market.

House Heating

Unsettled conditions and shortages of the supply of solid and liquid fuel during and since the war, combined with more efficient gas equipment, has produced unprecedented demands for gas space heating. During the year the number of homes heated by gas increased better than 15%. Homeowners' requests for gas space heating have reached such proportions that many major gas utilities cannot meet the demand because shortages of materials during the past few years have prevented the normal expansion of their distribution and manufacturing facilities.

Millions of dollars have already been appropriated for expanding the gas manufacturing facilities of manufactured gas companies and the transmission facilities of natural gas pipe line companies in order to meet the growing demand in present markets and to reach new markets. Gas house heating units produced during 1946 totalled better than 600,000.

Modernization and reconversion of hotels, restaurants, businesses, and industries, has placed orders on the books of gas equipment manufacturers which reflect the growing appreciation of the easy-to-control and efficiency of gas as a fuel.

Recognizing the need for aggressive and continued promotion, the industry is spending more than $25,000,000 a year in the promotion of automatic gas appliances. Major emphasis is being put on proper training, sales and service personnel, production, manufacturing, and sales and market research, which will enable the industry to maintain its position.

CHARLES M. COHN

Charles M. Cohn, Chairman of the Board of Directors of Consolidated Gas Electric Light and Power Company of Baltimore died December 5th after a short illness.

He entered the employ of the Consolidated Gas Company of Baltimore, a predecessor of the present Company, in 1885, when that Company was engaged solely in supplying gas for illumination in residences, a few commercial establishments, and for street lighting.

In 1906 the electric company was merged with the gas company, forming the present Consolidated Gas Electric Light and Power Company of Baltimore. Mr. Cohn, who had been Secretary of the old gas Company, was elected Secretary of the new company at that time and in 1907 was elected a Director of the Company.

In 1910 Mr. Cohn was elected Vice-President and General Manager and later in the same year became Vice-President in charge of the Gas Division. He was made a member of the Executive Committee in 1912 and in 1931 was elected Executive Vice-President. This office he held until 1942, at which time he was made President of the Company.

In 1943 he was made Chairman of the Board and President, holding these offices until 1946, when at his request he retired as President but continued to serve as Chairman of the Board.

W. GRIFFIN GRIBBEL

Major W. Griffin Gribbel, veteran of World War I and former vice president of the American Meter Co., died Dec. 11th of a heart attack following a short illness.

Major Gribbel was born in New York October 24, 1880. He attended Penn Charter School and was graduated from the University of Pennsylvania as a mechanical engineer.

He first went to work for the John J. Griffin Co., makers of gas meters. This company later became part of the American Meter Co.

During World War I Major Gribbel was attached to the Chemical Warfare Division and was commended for his engineering work. At the end of the war he returned to the American Meter Co., as vice president.

He retired from the vice presidency in 1942, but remained as director and executive committee member.